

BY ORDER OF THE COMMANDER

**AETC INSTRUCTION 11-301
17 FEBRUARY 1998**



Flying Operations

★AETC AIRCREW LIFE SUPPORT (ALS) PROGRAM

----- Compliance with this publication is mandatory -----

This instruction establishes the life support program for Air Education and Training Command (AETC). It implements AFD 11-3, *Life Support*, and applies to all AETC aircrews and personnel (military, civilian, contractor, etc.) who fly in aircraft assigned or attached to organizations of this command. This instruction applies to all AETC-gained Air National Guard units when published in the ANGIND 2, *Numerical Index of Air National Guard and Applicable Publications*. The use of the name or mark of any manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force. See attachment 1 for a glossary of references and abbreviations used in this publication.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed. This revision incorporates guidance for AETC-gained units concerning life support matters; establishes life support quality manager (LSQM) responsibilities; updates the life support quality program requirements; and standardizes aircrew life support continuation training programs and aircrew protective clothing requirements.

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Chapter 1—AIRCREW LIFE SUPPORT (ALS) PROGRAM

Section 1A	Procedures	
1.1	Overview	5
1.2	Headquarters Office of Primary Responsibility (OPR)	5
1.3	Organization	5
1.4	Objectives	5
1.5	Supplements and Waivers	5
1.6	Changes to this Instruction and Life Support Technical Orders.....	5
1.7	Communications Channels	5
Section 1B	Responsibilities	
1.8	Chief of AETC ALS System (ALSS)	6
1.9	Command LSO.....	7
1.10	The AETC ALSS Staff	7
1.11	Wing Life Support Officer (WLSO) and Life Support Quality Manager (LSQM)	9
1.12	SLSO and Squadron Noncommissioned Officer in Charge (SNCOIC)	13
1.13	Weapon System Team Chief (WSTC)	15
1.14	Formal Course Offices	15
Section 1C	Life Support Training	
1.15	Scope	16
1.16	LS Technician (LST) Training.....	16
1.17	Aircrew Life Support Training (ALST)	17
Table 1.1.	AETC Life Support Personnel Training Requirements.....	19
Section 1D	Quality	
1.18	The AETC Life Support Quality Programs.....	25
1.19	Quality Inspection Requirements	25
1.20	Quality and Standards Assessments	26
1.21	Product Quality Deficiency Report/Report of Discrepancy (PQDR/ROD)	27
1.22	Publications and Technical Orders	27
1.23	Facilities	27
1.24	Hazardous Communications Program.....	27
1.25	Infection Control.....	28
Section 1E	Life Support Equipment Requirements	
1.26	Purpose of Life Support Systems and Equipment	28
1.27	Responsibilities	29
1.28	Related Maintenance and Base Support Activity Responsibilities.....	32
1.29	Clothing Requirements.....	33
1.30	Life Support Equipment	34
1.31	Control and Storage of ALSE During Aircraft Pickup and Delivery.....	42
1.32	Physical Restrictions	43
1.33	Video and Sound Equipment.....	43
Section 1F	Physiological Incidents (PI)	
1.34	PI Mishap Investigation Procedures	43

Chapter 2—TRAINING AIRCRAFT LIFE SUPPORT PROGRAM

2.1	ALSE Procedures and Requirements.....	46
Table 2.1	Minimum Aircraft-Installed Equipment	46

Page

Table 2.2	T-9 Liferaft Accessory Container Components.....	47
Table 2.3	Mandatory Aircraft Minimum Survival Kit Components.....	49
Table 2.4	Optional Accessories, F-2B Liferaft	50
Table 2.5	Minimum PSK/Vest Components.....	50
Table 2.6	CNU-129/P Survival Kit Components.....	51
2.2	General Equipment Procedures and Requirements.....	52

Chapter 3—FIGHTER AIRCRAFT LIFE SUPPORT PROGRAM

3.1	Personnel Qualification	53
3.2	ACES II Parachute (30-Day Inspection).....	53
3.3	Connector Assemblies.....	53
3.4	ACES II Survival Kit (180-Day Inspection)	53
3.5	Aircraft Transfer.....	53
3.6	Minimum Aircraft-Installed Equipment.....	53
Table 3.1	ACES II Survival Kit Components	54
3.7	Combat Edge (CE) Equipment	54
3.8	Orientation Flights.....	55
3.9	Custom-Fitting Equipment.....	55
3.10	Antiexposure Suit (CWU-74/P, 21/P, and 21A/P).....	55
3.11	Torso Harness.....	55
3.12	Combat Edge Vest and Anti-G Garment	55
3.14	Core Automated Maintenance System (CAMS)	55
Table 3.2	Mandatory Survival Vest Components	56

Chapter 4—AIRLIFT SYSTEMS LIFE SUPPORT PROGRAM

Section 4A	Weapon System Unique Responsibilities	
4.1	Commanders.....	57
4.2	Aircrew Life Support Personnel	57
Section 4B	Aircraft-Installed ALSE Procedures	
4.3	Aircraft Configuration.....	57
4.4	Aircraft-Installed Aircrew Oxygen Masks.....	57
Table 4.1	C-5 Aircraft LSE Configuration	58
Table 4.2	C-12 Aircraft LSE Congiration	59
Table 4.3	C-21 Aircraft LSE Configuration	59
Table 4.4	C-17 Aircraft LSE Configuration	60
4.5	Aircraft Ferry Flights.....	60
4.6	C-5 ALSE.....	60
Table 4.5	C-130 Aircraft LSE Configuration	61
Table 4.6	C-141Aircraft LSE Configuration	62
Table 4.7	KC-135 Aircraft LSE Configuration.....	63
Table 4.8	MAJCOM Options F-2B Liferaft Accessories	64
4.7	C-12 and C-21 ALSE.....	64
Table 4.9	C-5 Accessories and Survival Items, 25-Person Liferaft.....	65
Table 4.10	C-12 and C-21 Survival Kit Components	66

Page

4.8	C-17 ALSE.....	66
4.9	C-130 ALSE.....	66
Table 4.11	C-12/C-21 T-9/LRU-14A/A Liferaft Accessory Container Components	67
4.10	C-141 ALSE.....	67
Table 4.12	C-17 Accessories and Survival Items, 46-Person Liferaft.....	68
Table 4.13	Mandatory Survival Vest/PSK Components (C-130 Aircraft).....	69
Table 4.14	ML-4 Survival Kit Components (C-130 Aircraft)	69
Table 4.15	Aircraft Minimum Survival Kit.....	70
4.11	KC-135 ALSE	70
Table 4.16	SRU-21/P Survival Vest Components (KC-135 Aircraft)	71
Table 4.17	ML-4 Survival Kit Components (KC-135 Aircraft)	72

Chapter 5—SPECIAL OPERATIONS/RESCUE AIRCRAFT LIFE SUPPORT PROGRAM

5.1	Minimum Aircraft-installed Equipment.....	73
Table 5.1	Minimum Aircraft-installed Equipment.....	73
5.2	Equipment Maintenance Requirements.....	73
Table 5.2	LRU-1/P and F-2B Liferaft Optional Items	74
Table 5.3	Survival Vest Components (Mandatory).....	75
5.3	Forms Prescribed	75

Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION 76

Attachment 2—AIRCREW TRAINING FREQUENCY 82

Attachment 3—AIRCREW VIDEO EQUIPMENT EGRESS (T-37/T-38) 83

Attachment 4—MAJCOM OPTIONS 85

Attachment 5—EQUIPMENT PREFLIGHT/POSTFLIGHT CHECKLISTS 88

Attachment 6—AIRCREW CLOTHING REQUIREMENTS 91

Attachment 7—AIRCREW FLIGHT CLOTHING AND WORN LSE 92

Attachment 8—PARACHUTE FLARE, KNIFE, AND MIRROR POCKET MODIFICATION (T-37, AT/T-38) 93

Attachment 9—PROTECTIVE CLOTHING KIT ITEM LISTING 96

Attachment 10—INSTALLATION OF HEED ON SURVIVAL VEST 97

Chapter 1

AIRCREW LIFE SUPPORT (ALS) PROGRAM

Section 1A--Procedures

1.1. Overview. Each level of command conducts an ALS program to ensure quality equipment and training is provided for the protection, safety, comfort, and survival of aircrews and passengers.

1.2. Headquarters Office of Primary Responsibility (OPR). The AETC Air Operations Squadron Aircrew Life Support Section (AOS/AOXL) is the OPR for policies, requirements (logistical and manpower), and training related to the AETC Aircrew Life Support Program. AETC AOS/AOXL is responsible for the oversight and enforcement of these policies and other directives concerning life support operations.

1.3. Organization. Aircrew life support is a staff function of HQ AETC/DO. AETC AOS/AOXL provides program execution guidance and compliance, specific weapon system policy, staff assistance visits (SAV), and inspector general (IG) oversight to flying units to ensure aircrew safety.

1.4. Objectives. The AETC ALS Program provides:

1.4.1. Aircrew member and passenger life support systems and training to ensure safety, protection, survival, and comfort of aircrews and passengers.

1.4.2. Life support systems necessary to sustain normal operations in all AETC aircraft, escape and descent, and survival and recovery.

1.4.3. Guidance to establish ALS training programs for aircrews, passengers, and ALS technicians.

1.4.4. Standardized procedures for use, maintenance, quality control, and the safeguard of life support equipment.

1.4.5. Organization focal points to ensure life support functions are adequately supervised, coordinated, and administered.

1.5. Supplements and Waivers. Wing commanders are authorized to supplement this instruction to meet operational requirements. Operations group commanders review and forward written waiver requests as required for unit-specific requirements. Send a printed copy of each supplement or waiver to AETC AOS/AOXL, 1 F Street, Suite 2, Randolph AFB TX 78150-4325. Waiver authority is AETC AOS/CC.

1.6. Changes to this Instruction and Life Support Technical Orders. Send recommended changes to this instruction to AETC AOS/AOXL. Submit recommended changes to technical orders (TO) on AFTO Form 22, **Technical Order Improvement Report and Reply**, according to TO 00-5-1.

1.7. Communications Channels. All active duty subordinate units will ensure life support matters are channeled through their wing life support personnel to AETC AOS/AOXL.

1.7.1. Execution and policy issues will be resolved at the lowest level possible.

1.7.2. AETC units will ensure all policy and requirement shortfalls are channeled to AETC AOS/AOXL with background papers to explain the issues and research done to date to minimize response time and duplication of effort.

1.7.3. Units will ensure that the applicable Operational Support Squadron (OSS) and AETC AOS/AOXL are provided copies of deficiency reports, hazard reports, and other correspondence relating to life support equipment and procedures.

1.7.4. AETC-gained Air National Guard Readiness Center (ANGRC) units will channel communications through their respective weapon system team chief (WSTC) to ANGRC/XOOS, 3500 Fetchet Ave, Andrews AFB MD 20762-5157.

1.7.5. AETC AOS/AOXL will communicate directly with subordinate life support units and air logistic centers (ALC), defense logistics agencies (DLA), and other major command (MAJCOM) life support offices on execution issues such as logistical support and equipment transfers. Units may also communicate with these agencies in emergency situations. Units will advise AETC AOS/AOXL of the details the next duty day.

Section 1B--Responsibilities

1.8. Chief of AETC ALS System (ALSS). The Chief of the ALSS must be a CMSgt or CMSgt select and possess Air Force specialty code (AFSC) 1T100. This individual will develop command life support (LS) policy and requirements for new equipment. Specifically, the individual will:

1.8.1. Design AETC aircrew life support policy to comply with the USAF life support system requirements and meet aircrew safety needs.

1.8.2. Develop manpower requirements and select qualified AETC ALS staff members (AOS and TRSS).

1.8.3. Provide recommendations to Requirements Division (HQ AETC/XPR, 1F Street, Suite 2, Randolph AFB TX 78150-4325) or Human Systems Center (HSC/YAS), 8701 13th Street, Brooks AFB TX 78235-5218, on new life support equipment requirements for commercial off-the-shelf (COTS) aircraft.

1.8.4. Identify qualified ALS personnel to augment the AETC Inspector General inspection staff.

1.8.5. Coordinate with HSC/YA on life support matters pertaining to the USAF 412A System for life support equipment development and procurement.

1.8.6. Act as the coordination point with the Air Staff, HSC, ALC, DLA, and MAJCOMs concerning aircrew life support matters.

1.8.7. Represent the command at conferences and meetings on development of new equipment, modifications, and concepts in the aircrew life support field.

1.8.8. Participate in HSC/YA-hosted research and development program review.

1.8.9. Serve as a member of the USAF life support executive committee.

1.8.10. Monitor and support the USAF aircrew life support officer course (S-V8G-A).

1.8.11. Monitor and support the technical schools (aircrew life support 7-level course, [J3ACR1T171 000], and apprentice aircrew life support specialist course, [J3ABR1T131 002]).

1.9. Command LSO. The AETC AOS/CC appoints the command LSO (as an additional duty). The individual appointed should remain in this position for 12 to 18 months. The command LSO will fly in command aircraft on a noninterference basis. He or she will complete S-V8G-A and prerequisites of AFMAN 36-2105, *Officer Classification*, and training as identified in this instruction.

1.10. The AETC ALSS Staff. Staff members will provide support to the chief of AETC ALS. Additionally, staff members will:

1.10.1. Provide execution support to the flying units to effectively comply with all directives pertaining to the AETC ALS Program (such as, technical updates, AFTO 22, and suggestion coordination).

1.10.2. Oversee the AETC life support program including logistics, aircrew, and technician training programs.

1.10.3. Review and submit recommended changes to requirements based on subject matter acquired information and expertise.

1.10.4. Review and approve all aircrew life support lesson plans and curriculum written and conducted by unit LS and aerospace physiology unit (APU) personnel. Lesson plans will be standardized for similar systems and updated with lessons learned from aircraft mishap reports or other source documents. As a minimum, lesson plans will include the following: purpose, objectives, course outline, requirements, responsibility, method of presentation, specific hands-on evaluation, references, and training aids required.

1.10.4.1. Review aircraft mishaps and incident reports involving life support equipment, ensure appropriate lesson plans are updated, and follow up on all equipment and training issues.

1.10.4.2. Consolidate AETC ALS metrics by base and weapon system for the previous 3 years.

1.10.4.3. Coordinate AETC training requirements with Classification and Training (HQ AETC/DPSEC) for submitting quotas for LSOs and technicians as required.

1.10.4.4. Manage AETC ALS training programs.

1.10.4.4.1. Manage command quota allocations for the USAF aircrew life support officer course (S-V8G-A), life sciences equipment investigation course, and courses for ALS instructors.

1.10.4.4.2. Ensure courses have the required trained personnel requirement (TPR).

1.10.4.4.3. Ensure AETC ALS formal courses conduct a utilization and training workshop every 24 months.

1.10.4.4.4. Ensure MAJCOMs have at least 10 working days to review proposed courseware (including career development courses [CDC]) prior to implementation.

1.10.4.5. Monitor command egress procedural trainers (EPT). Ensure trainers are assigned in sufficient quantities consistent with operational requirements and are maintained in the same configuration as aircraft equipment.

1.10.4.6. Ensure subordinate units are authorized and have sufficient aircrew life support equipment (ALSE) and supplies on hand to meet mission requirements. Work directly with HQ AETC/LGS, HSC/YAD, and DLA personnel to resolve all ALSE issues.

1.10.4.6.1. Consolidate unit time change forecasts for submission to depot as required.

1.10.4.6.2. Identify shortage items and communicate with HQ AETC/LGSW and depot item managers to resolve shortages.

1.10.4.7. Ensure subordinate units are authorized ALSE consistent with operational requirements. Monitor and direct transfer of excess equipment assets for redistribution. Coordinate with depots to ensure units are authorized required ALSE and follow up on shortage and deficient items.

1.10.4.8. Provide recommendations for development and modification of ALSE consistent with operational requirements and evaluate recommended changes (submitted on either AF Form 1000, AFTO 22, or AF Form 847) as they pertain to USAF and command ALS matters.

1.10.4.9. Represent the command at conferences and meetings on fielding of new equipment, modifications, and concepts in the aircrew life support field.

1.10.4.10. Manage command operational testing and evaluation (OT&E) programs on ALSE.

1.10.4.11. Analyze, evaluate, and validate waiver requests submitted from units. Forward recommendation to the AETC AOS/CC using the electronic staff summary (ESS) format.

1.10.4.12. Augment HQ AETC Inspector General inspections as required.

1.10.4.13. Conduct ALSS quality visits to subordinate units as requested or required.

1.10.4.14. Ensure a qualified primary wing or squadron LSO is assigned to assist aircraft mishap investigation boards (see AFI 91-204, *Safety Investigations and Reports*) when life support equipment, systems, or procedures are involved. Highly skilled life support (in egress systems, aircrew training, and LS equipment) senior noncommissioned officers (SNCO) who are graduates of the life sciences investigation course may also investigate mishaps.

1.10.4.15. ANGRC/DOS, along with WSTCs, will recommend the primary life support mishap investigation board members to Air National Guard Readiness Center, Safety Office (ANGRC/SE), for

ANG mishaps.

1.10.4.16. Work with HQ AETC/DP allocating required manning for wing level and below.

1.10.4.17. Monitor unit aircrew life support Quality reports to ensure proper actions are taken on findings, recommendations, and problem areas.

1.10.4.18. Manage subordinate unit aircraft conversion, time compliance technical order (TCTO) modifications, and fielding of new ALSE to ensure satisfactory integration of life support equipment with aircrew recovery systems. Inform the aircrew life support system manager (ALSSM) of program delays or supply problems.

1.10.4.19. Monitor aircraft transfers to ensure appropriate life support equipment is included.

1.10.4.20. Prepare evaluations and recommendations on product quality deficiency reports (PQDR), AF Forms 457, **USAF Hazard Reports**, and AF Forms 711G-Series, **Life Sciences Reports**. Maintain an historical record copy of all evaluations and recommendations.

1.10.4.21. Organize and conduct an annual command ALSS workshop.

1.10.4.22. Develop, publish, and forward the AETC Quality Assessment checklist to each unit life support program.

1.10.4.23. Establish an AETC AOS LS Quarterly Management Report (QMR), RCS: AETC-AOS(Q)9701, designed to consolidate unit requests for support and advice to improve management and execution of the ALS program.

1.10.4.24. Maintain current files of TOs, publications, and other pertinent data that apply to the operation, inspection, maintenance, issue, and training of ALSE or assigned aircraft required by subordinate units. Maintain these records as reference for all AETC staff functions.

1.10.4.25. Conduct an annual AETC LS awards selection board with the chief of AETC ALSS as board president. Ensure packages and awards are prepared for coordination through the staff. Ensure AETC Operations Recognition Program winners selected for USAF competition are forwarded according to AFI 36-2807, *Headquarters United States Air Force Deputy Chief of Staff Plans and Operations Annual Awards Program*.

1.10.4.26. Manage and update the AETC life support address indicator group (AIG). Develop and use an AETC ALS message and E-mail address list to efficiently keep all sections informed of issues that may directly or indirectly affect their program.

1.11. Wing Life Support Officer (WLSO) and Life Support Quality Manager (LSQM):

1.11.1. The operations group commander (OG/CC) appoints the WLSO (as an additional duty). Individuals appointed should remain in this position for 12 to 18 months. Each WLSO must be on active flying status in primary wing aircraft. WLSOs will fly in other wing aircraft occasionally. They will complete course S-V8G-A, prerequisites of AFMAN 36-2105, and training as identified in this

instruction. Submit written requests for S-V8G-A quotas to AETC AOS/AOXL, 1F Street, Suite 2, Randolph AFB TX 78150-4325.

1.11.2. The WLSO will complete a local training program. Training consists of a briefing from egress and survival equipment shops, squadron life support officers (SLSO) and squadron noncommissioned officers in charge (SNCOIC), review of lesson plans, and other tasks performed by WLSO. The WLSO will be certified in giving ALS training by another certified trainer.

1.11.3. The LSQM should be a SMSgt (AFSC 1T191), MSgt (AFSC 1T171), or MSgt selectee who has completed the 1T171 CDC and in-residence 1T171 course (or aircrew life support supervisor course). The LSQM will maintain qualifications on all equipment and training requirements provided by the units. This includes TO familiarization on wing equipment.

1.11.4. Duties of the WLSO and LSQM include:

1.11.4.1. Establish and supervise the aircrew life support training program. Provide guidance and oversight to ensure unit LS programs are providing quality LSE and LS training to maximize aircrew safety.

1.11.4.2. Identify permanent party crewmembers who have not attended formal survival training according to AFI 36-2209 to the OG/CC.

1.11.4.3. Randomly attend and review training sessions and critique the following: course presentation and instructor knowledge; condition and use of training aids; student involvement; and hands-on aircrew demonstrated proficiency training.

1.11.4.4. Ensure OG operating instructions (OI) are developed and maintained to ensure standardization and timely accomplishment of life support duties throughout all elements of the wing. Ensure OIs are coordinated with each squadron and the OG/CC. As a minimum, OIs will address: OG-level life support responsibilities delegated to subordinate units, enlisted specialty training (such as, Career Field Education and Training Plan [CFETP], master Job Qualification Standard [JQS], and core responsibilities), aircrew continuation training and safety, and quality assurance. Additional OIs will address supply and cost center management, aircraft mishap investigation, aircraft LSE configuration and securing procedures (standardized with gaining command requirements), and any other instruction required to accomplish oversight duties and to maximize aircrew safety.

1.11.4.5. Perform monthly unit spot checks on ALSE quality. Check five percent (minimum of two) of each piece of equipment inspected that month during these no-notice checks. Remove or correct any unsafe LSE prior to flight, document checks on AF Form 2420, **Quality Assurance Inspection Summary**, provide a copy to the unit, and keep a file copy.

1.11.4.6. Perform unit no notice and short notice proficiency checks on ALST proficiency. Identify an aircrew to be evaluated (a minimum of one instructor pilot and one student per unit per quarter) and have the aircrew perform all critical performance requirements (strap-in, egress, hanging harness/post bail out procedures, signaling, flotation, as applicable). Aircrews failing steps will be retrained and recertified prior to their next flight. Provide a copy of the AF Form 2419, **Routing and Review of Quality Control Reports**, to the unit and keep a file copy.

1.11.4.7. Evaluate unit life support activities (at least semiannually) in depth as part of operations group standardization and evaluation visits. Use the quality assessment checklist provided by AETC AOS/AOXL (updated and customized locally with changes to meet mission requirements collected from TOs, instructions, messages, and other official communications) to evaluate all aspects of equipment and training.

1.11.4.8. Evaluate the AFSC 1T1X1 enlisted specialty training program to ensure it is implemented and conducted according to AFI 36-2201, *Developing, Managing and Conducting Training*, this instruction, and local directives.

1.11.4.9. Evaluate the Quality Assurance Program (QAP) to ensure it meets standards.

1.11.4.10. Ensure units maintain and review Air Force Operations Resource Management System (AFORMS) products to ensure assigned aircrew members are current in required life support training.

1.11.4.11. Ensure unit life support activities budget for required equipment and supplies. Additionally, ensure ALSE and supplies are available according to AFCAT 36-2223, *USAF Formal Schools*, AFI 11-206, *General Flight Rules*, Allowance Standard (AS) 450, *Personal/Life Support Equipment*, and AS 016, *Special Purpose Clothing and Personal Equipment*, to meet mission needs. Declare equipment not in service as excess to AETC AOS/AOXL immediately and redistribute or turn in as directed.

1.11.4.12. Evaluate TOs, directives, information files, and other life support programs to ensure they support aircrew safety and meet established requirements.

1.11.4.13. Monitor ALST administered at undergraduate flying training (UFT) wings by APUs at least quarterly and submit results by memorandum to the Aerospace Medicine Squadron Chief, Aerospace Physiology, and AETC AOS/AOXL. Use APU instructor guides to ensure all required subject matter is taught. Life support subjects are designated in the UFT syllabi (students) and locally developed lesson plans (all others). The memorandum should include subject matter monitored, quality of training, and any recommended changes to enhance training. Maintain a record of each training session monitored for 1 year according to AFI 37-138, *Records Disposition - Procedures and Responsibilities*.

1.11.4.14. Monitor and evaluate quarterly training for crash rescue teams (fire department) on extraction of aircrews from aircraft. Sample one type of assigned aircraft per quarter. Ensure training and necessary equipment is provided to crash rescue teams, including how to disconnect all LSE and how to handle hazardous LSE. Training may be given by a qualified SLSO or assistant. Maintain a record of each training session monitored as general correspondence according to AFI 37-138.

1.11.4.15. Prepare an annual quality report that measures the quality of the life support equipment and aircrew training provided by each flying unit as directed by AFD 11-3. Use AF Form 2419 and 2420 data collected over the time of the report to develop matrix according to AFD 11-3. Provide an annual quality report to unit commanders, OG/CC, and AETC AOS/AOXL by 15 January for the previous calendar year. This data will be used to report AETC equipment and aircrew training quality trends to HQ USAF/DOO according to AFD 11-3 and MAJCOM guidance.

1.11.4.16. Conduct USAF-directed aircrew life support surveys and consolidate data for the OG per instructions provided with the survey according to AFD 11-3 and MAJCOM guidance.

1.11.4.17. Conduct ALSS quality group meetings at least semiannually. These meetings will bring together all facets of the life support system, such as operations, maintenance, safety, and flight surgeon, to review the unit's program and evaluate potential problem areas and determine corrective actions. Document minutes and send a copy of the minutes to AETC AOS/AOXL.

1.11.4.18. Update ALS lesson plans and training aids for availability, appropriateness, and quality to support the program requirements. Conduct and document periodic inspections to ensure safety of egress trainers, hanging harness devices, and water survival equipment. Submit life support continuation training lesson plans to AETC AOS/AOXL for approval.

1.11.4.19. Prepare and validate consolidated wing LSE time change forecast data according to applicable TOs and AFIs. Send copies to AETC AOS/AOXL. Ensure life support and survival equipment personnel input time change data into the Core Automated Maintenance System (CAMS), and budget for and supply parts they replace during inspections.

1.11.4.20. Consolidate unit CAT D training munitions expenditures and send annual report to AETC AOS/AOXL by 15 January for the previous calendar year.

1.11.4.21. The wing LSQM must have e-mail capability available and accessible for coordination of official life support issues. This includes requests for information, equipment status, budget execution review (BER), etc.

1.11.4.22. Be the wing focal point for command life support information distribution. Information from the command will be forwarded to the wing LSQM and WLSO for timely distribution to the units. This ensures that information for quality enforcement is up to date and forms a vital link to the wing's life support shops.

1.11.4.23. Consolidate unit inputs for the AETC life support Quality Management Report, RCS: AETC-AOS(Q)9701, and send to AETC AOS/AOXL quarterly.

1.11.4.24. Evaluate AFTO Forms 22 and AF Forms 847 and 1000 pertaining to life support matters before submitting them to higher headquarters.

1.11.4.25. Ensure units investigate physiological incidents and flight mishaps and review and validate data. Work with the local aerospace medicine office and wing flying safety office in completing and certifying all applicable 711-series Air Force forms. Include statements concerning the condition of ALSE. Submit PQDRs as necessary to AETC AOS/AOXL. When requested by AETC AOS/AOXL, assist mishap investigation boards involving the use of life support equipment, injury of life, or loss of life.

1.11.4.26. Monitor aircraft conversion and TCTO modification programs to ensure satisfactory integration of LSE with aircrew recovery systems. Advise AETC AOS/AOXL of program delays or supply problems.

1.11.4.27. Participate in OT&E programs as directed by AETC AOS/AOXL.

1.11.4.28. Monitor ALSE and ensure PQDRs are submitted as required. Include AETC AOS/AOXL as addressees for all PQDRs. Additionally, notify AETC AOS/AOXL by phone when submitting PQDRs.

1.11.4.29. Develop a wing supplement to this instruction to specify the type of seasonal clothing, temperature ranges and (or) the calendar months, and specific operational missions when seasonal flying clothing is worn. General flight clothing requirements are in AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*. Use AF Form 1000 to process deviations.

1.11.4.30. Ensure adequate LSE is available to issue to aircrews according to AFCAT 36-2223. Establish supply special levels (minimum six class backup) through local supply on all life support-issued items.

1.11.4.31. Certify life support personnel to clear red-X conditions. Life support red-X certification is accomplished according to AFI 21-112, *Aircraft Egress and Escape Systems*, and TO 00-20-5, *Aircraft, Drone, Aircrew Training Devices, Engines, and Air-Launched Missile Inspections, Flight Reports, and Supporting Maintenance Documents*. The LSQM will submit memorandums of certification to the squadron maintenance officer (or equivalent) for approval.

1.11.4.32. Ensure life support annual award winner packages are submitted to AETC AOS/AOXL by the 1st of January for consideration in the Air Force-level competition. Follow instructions in AETCI 36-2803, *Operations Recognition Program*, to submit award winners.

1.11.4.33. Ensure units submit supply difficulty memorandums with precise mission impact statements to base supply stock control element when supply status fails to meet mission requirements. Coordinate with stock control elements to ensure a message is transmitted to the source of supply with an information copy to HQ AETC/LGSW requesting improved status. Provide AETC AOS/AOXL the national stock number (NSN), off-base requisition number, priority, and quantity needed after local followup actions fail to meet mission requirements.

1.11.4.34. Ensure units establish and use bench stock to support mission operations.

1.11.4.35. Certify SLSOs by memorandum. Maintain a certification memorandum for all SLSOs.

1.12. SLSO and Squadron Noncommissioned Officer in Charge (SNCOIC). An SLSO is assigned at squadron level and trained before performing duties. SLSOs must be currently on flying status in primary aircraft (assigned) inventory (PAI) aircraft. Flights in other wing PAI aircraft are encouraged. SLSOs will attend S-V8G-A, Aircrew Life Support Officer Course, and will complete a local training program (consists of briefing from egress and survival equipment shops, WLSO, and LSQM; review of lesson plans; and other tasks performed by SLSO). The SLSO will be certified in giving ALS training by another certified trainer. The SNCOIC may be a TSgt or SSgt (AFSC 1T171) who has completed the AFSC 1T171 CDCs and J3ACR1T171, Aircrew Life Support Craftsman Course (or Aircrew Life Support Supervisors Course). To provide quality LSE and LS training and maximize aircrew safety, the SLSO and SNCOIC will:

1.12.1. Implement the life support program according to AFI 11-301, *Life Support Program*, this instruction, other directives, and applicable host/tenant support agreements. Ensure the squadron life support program complies with the USAF Life Support System, this instruction, and local directives.

1.12.2. Develop OIs on shop operations addressing standby operations; TO and publication familiarization; control of test, measurement, and diagnostic equipment (TMDE) items if not covered by other guidance; self-assessment guide; flight surgeon visits; hazardous communication program; flight line

operations; and inadvertent beacon activation location procedures.

1.12.3. Establish a standardized composite tool kit (CTK) program. As a minimum, the CTK program will comply with AETCI 21-101, volume 2, *Maintenance Management of Aerospace Management*. Inventory flight line tools before performing aircraft maintenance and after aircraft maintenance is complete before departing the flight line.

1.12.4. Implement the unit life support technician training program and establish a TO familiarization program for assigned personnel.

1.12.5. Ensure instructions, manuals, and TOs pertaining to inspection, maintenance, and use of assigned ALSE, systems, and subsystems are maintained.

1.12.6. Develop annual budgets and maintain records for all current and future supply and equipment requirements (effective unit life support supply/cost center management procedures).

1.12.7. Submit time change forecasts to the wing life support office 30 days before suspense identified in the TO (to allow review, consolidation, and shipping time) and AFI 21-208, *Munitions Forecast, Allocation, and Buy Budget Processes*. Use CAMS to input LSE time change data on equipment items replaced.

1.12.8. Conduct aircrew life support and survival continuation training as directed. Ensure aircrew are certified using training aids on all critical ALSE (egress trainers, parachutes, signaling, flotation, etc.). Ensure training data is input in the AFORMS and review output products to ensure assigned aircrew members are current in required life support training.

1.12.9. Investigate all physiological incidents (PI) and aircraft mishaps and work with the local aerospace medicine office and wing flying safety office to complete and certify all applicable 711-series Air Force forms. Include statements concerning the condition of ALSE and submit PQDRs as necessary. Provide AETC AOS/AOXL a copy of all submitted PQDRs and 711-series forms for all PIs and mishaps. Investigate aircraft mishaps involving the use of life support equipment, injury of life, or loss of life (as requested by AETC AOS/AOXL).

1.12.10. Initiate PQDRs, TO improvement reports, and operational hazard reports that affect life support equipment and procedures.

1.12.11. Certify life support instructors (LSI) and assistant squadron life support officers by memorandum. Certify life support liaison officers (LSLO) as qualified aircrew LS trainers to conduct all phases of life support continuation training as required. LSLOs are additional instructors used to ease the training load and increase flexibility in scheduling training. Attendance at the USAF aircrew life support officer course is not required for LSLOs.

1.12.12. Perform daily quality assurance checks (10 percent of items inspected), and unit self assessments at least semiannually using checklists locally updated and tailored to the using organization. Analyze deficiencies to help identify the root cause (inadequate training or lack of motivation) and correct deficiencies promptly. Document corrective actions (such as, improved technician training, enforcing guidance, counseling unmotivated technicians, etc.) and maintain for 1 year.

1.12.13. Ensure equipment and supplies necessary to meet mission requirements are on hand and appropriate followup actions (such as, supply assistance, supply difficulty memorandum with mission impact statement, etc.) are taken. Advise LSQM of status of followup actions so he or she may seek assistance from AETC AOS/AOXL.

1.12.14. Ensure technicians are trained and certified to perform maintenance on ALSE assigned and AFSC 1T150 core tasks (unless waived). Use the dedicated technician concept (that is, assigning aircrews and aircraft equipment to a specific technician) whenever possible to develop pride of ownership and to improve service and accountability.

1.12.15. Ensure technicians complete cockpit familiarization training and are trained and certified in aircraft safe-for-maintenance and flight line safety procedures. Life support personnel who perform maintenance on multiplace aircraft (both fixed-wing and rotary) will receive initial and annual emergency ground egress training. Document training on AF Form 1098, **Special Task Certification and Recurring Training**.

1.12.16. Order custom-made oxygen masks for aircrews who need them.

1.12.17. Coordinate with other ALSS functions and supporting agencies on life support matters. This includes the responsibility to ensure that ALSS functions are performing inspections and maintenance on ALSE as specified by TOs and this instruction.

1.12.18. Work with units supported and LSQM to develop host-tenant support agreements. Send a coordination copy of each approved host-tenant support agreement to AETC AOS/AOXL for review.

1.12.19. Conduct OT&E programs on LSE as directed.

1.12.20. Ensure commercially procured off-the-shelf equipment items and parts are approved (AS, TO, or this instruction). Contact AETC AOS/AOXL to validate approval.

1.12.21. If within the unit's capability, support the Aero Club with issue of ALSE and training as outlined in AFI 34-217, *Air Force Aero Club Program*.

1.13. Weapon System Team Chief (WSTC). The WSTCs are both ANG and AETC subject/weapon system experts who provide technical and working expertise on particular weapon systems. These personnel are assigned to their respective units and function as the liaison for their particular weapon system. They provide AETC AOS/AOXL insight on the best policy and execution options for their area of expertise. They support the life support managers at ANGRC/DOS and AETC AOS/AOXL by resolving problems peculiar to their assigned weapon system. They review and approve lesson plans and supplements to higher headquarters publications for their respective weapon system. The ANG WSTC also performs staff assistance visits for their respective weapon system.

1.14. Formal Course Offices. The AETC TRSS/IDO will conduct the aircrew life support officer and enlisted ALS accident investigator courses. The 361 TRS/RWL conducts ALS enlisted technical training and supervisory courses. Their responsibilities include conducting a utilization and training workshop every 24 months to ensure their courses meet MAJCOM requirements, and reviewing the TPR and providing support requirement comments to AETC AOS/AOXL for representation at TPR conferences.

Other functions of this office are to:

- 1.14.1. Budget for the required resources to meet the course requirements.
- 1.14.2. Develop new equipment training programs and conduct required courses to train ALS personnel.
- 1.14.3. Identify early in program development new equipment requirements for OPR MAJCOMs identified to be part of AETC courseware.
- 1.14.4. Ensure MAJCOMs have at least 10 working days to review proposed courseware (including CDCs) before implementation. Forward the courseware to AETC AOS/AOXL for coordination with MAJCOM ALS managers.

Section 1C--Life Support Training

1.15. Scope. LS training is designed to develop proficiency and certify aircrews and technicians on all life support procedures and responsibilities.

1.16. LS Technician (LST) Training. LST training is an instructional process that leads to task qualification through technician continuation training (TCT) or upgrade and qualification training conducted according to AFI 36-2201, *Developing, Managing, and Conducting Training*, and AFSC 1T1X1 CFETP. This also includes ongoing training to maintain and recertify established skills.

1.16.1. LST Trainers (LSTT). LSTTs are experienced 5-skill level technicians who have graduated from the Air Force training course (J6ADL3S2X1000) or train-the-trainer course (J6AJS2X1001). They will use the training principles outlined in these courses.

1.16.2. LSE Training Plans. Training plans will be developed and used for all LSE training requirements. Wing LSTTs should standardize LSE training plans to improve their quality and to minimize the development and improvement effort.

1.16.3. Life Support Task Certifier (LSTC). The LSTC is the NCOIC, supervisor, or quality assurance inspector (QAI) who is highly qualified and experienced in LS tasks and has graduated from the Air Force training course (J6ADL3S2X1 000) or the task certifier course (J6AJS3S2X1 000). The LSTC is a third party who validates the ability and knowledge of the trainee and the quality of the training. LSTC will use the training principles in the Air Force training course and task certifier course. The LSTC will certify using practical and oral evaluations. The practical evaluation will allow the trainee to complete the task without interruption. Oral questions will confirm knowledge requirements not observed during the evaluation. Use task evaluation checklists (these may be copies of the TO or directives that set standards for the task).

1.16.3.1. Recertify all newly assigned personnel (military and civilian) in previously certified areas within 60 days (prior to inspecting that item of LSE).

1.16.3.2. Recertify training graduates of apprentice aircrew life support specialist course (J3ABR1T131 002) on all 3c items in column 2a of the CFETP. Provide a short review and practice task evaluation prior to recertifying the individual with a formal task evaluation.

1.16.3.2.1. Complete AF Form 1284, **Training Quality Report (TQR)**, on all technical school graduates. Ensure each graduate is evaluated for proficiency, using the CFETP/MTL (1T131). Send a copy of the training report to AETC AOS/AOXL for review.

1.16.3.2.2. Evaluate all life support personnel using pass and fail criteria (initial and annually thereafter). Document all technician task evaluations (TTE) on AF Form 803. Failing evaluations require task decertification and initiation of requalification training according to AFI 36-2201 (includes AFR 50-23) and document this on AF Form 803. File the most current AF Form 803 for each task in the individual's training folder. Written evaluations will include a statement that certifies task qualification meets technical requirements.

1.16.4. **Technician Continuation Training (TCT)**. TCT sessions are conducted annually on all ALSE. Use the demonstration-performance method of instruction and document each session. Supervisors will develop a training plan to support TCT and use feedback from the trend resolution, QCI, and TTE programs to target areas requiring increased technician training emphasis.

1.16.5. **Directive Familiarization**. Includes all information (TOs, OIs, etc.) that pertains to the LSE inspection or other processes. This will include an initial familiarization prior to task certification/recertification and all subsequent changes or supplements.

1.16.5.1. Life support personnel will be able to retrieve, interpret, and apply information contained in publications and TOs (basic document and changes) required during the performance of their duties.

1.16.5.2. Both the initial and change review will be documented using AF general purpose forms or local products and kept until superseded.

1.17. Aircrew Life Support Training (ALST). Tailor life support training to provide aircrews and passengers the knowledge and skill to employ ALSE, egress systems, survival, and signaling devices effectively under normal and emergency conditions. Ground and air egress training will be conducted with the crewmember dressed in all required equipment (helmet, oxygen mask, flight gloves, anti-G suit, checklists, and in-flight guides) normally worn during flight. Flying boots are not required for water survival refresher training. **NOTE:** Take care to prevent ALSE damage during training sessions. Use training parachutes for egress and hanging harness training.

1.17. Wing Life Support Trainer (WLST). Where authorized, the WLST is assigned to the OSS, along with the superintendent. If this is not possible, there will be a lead trainer identified for this duty from a squadron. Rotate trainers through the training position at least every 18 months. This gives other individuals the opportunity to perform training duties and helps to develop well-rounded technicians. Commanders are encouraged to provide orientation/incentive flights to trainers to enhance their system knowledge and instructor credibility.

1.17.1.1. **Minimum Qualifications**. A WLST must have 1 year time on station or association with AETC, be a senior airman or above, and possess a 5-skill level. Also, a WLST must have prior squadron-level training experience, been an OJT trainer, and completed the Air Force training course (J6ADL3S2X1000) or previous train-the-trainer and task certifier courses. See table 1.1 for mandatory and desirable training requirements.

1.17.1.2. **Duties and Responsibilities.** The following list is not all inclusive and may include additional job-related duties of a WLST:

1.17.1.2.1. Write and update lesson plans.

1.17.1.2.2. Obtain and prepare training aids.

1.17.1.2.3. Coordinate and assist with search and rescue exercise (SAREX) activities.

1.17.1.2.4. Train others to assume this position.

1.17.1.2.5. Be the lead instructor and a part of every life support training session possible. This will improve training quality and help standardize training throughout the wing.

1.17.1.2.6. Maintain qualifications on all equipment and training requirements provided by the units.

1.17.1.2.7. Maintain life support training equipment and facilities.

1.17.1.2.8. Ensure crewmembers meet minimum formal survival training requirements according to AFI 36-2209, *Survival and Code of Conduct Training*, and the training requirements of this instruction.

1.17.1.2.9. Ensure a realistic training environment for all life support training events.

1.17.1.2.10. Ensure all crewmembers are trained on changes to life support equipment or new equipment items before placing in service.

1.17.1.2.11. Annually review and certify life support continuation training lesson plans. Use guidelines in AFMAN 36-2236, *Guidebook for Air Force Instructors*, to develop lesson plans. Send copies of lesson plans and changes or updates to AETC AOS/AOXL for approval.

1.17.1.2.12. Coordinate with scheduling personnel to include contractors on the monthly and quarterly wing life support training schedule.

1.17.2. **Squadron LSO/Unit Enlisted ALS Trainers.** These individuals are responsible for the content and quality of all life support and egress training. Life support training will be tailored to provide aircrews and passengers with the knowledge and skill to employ ALSE, egress systems, survival, and signaling devices effectively under normal and emergency conditions. Responsibilities include:

1.17.2.1. Establish procedures to identify individuals requiring training and those whose life support training has expired.

1.17.2.2. Refer those aircrew members whose training has expired to the squadron operation's officer. Unless waived by the OG/CC in writing, crewmembers who are overdue continuation life support training will not be permitted to fly until training is received.

1.17.2.3. Coordinate and schedule instructor augmentation requirements when needed. *This individual* will be fully qualified to assist in all phases of life support/survival training.

1.17.3. Qualification and Certification of Training Instructors. See table 1.1 for mandatory and optional training requirements for life support instructors.

1.17.3.1. Aircrew life support instructors (ALSI) will be trained by another certified ALSI. This OJT process includes individual study of lesson plans and observation of training and briefings from egress, survival equipment, etc.

1.17.3.2. ALSIs will be task certified giving ALS training. Document initial certification and annual recertifications on AETC Form 281, **Instructor Evaluation Checklist**. (**NOTE:** AETC Form 620, **Academic Instructor Monitoring Checklist**, was used previously for this purpose. Units should retain previous AETC Forms 620 for historical reference.) The main emphasis of the evaluation should be content and effectiveness of training.

Table 1.1. AETC Life Support Personnel Training Requirements. (note 1)

I T E M	A	B	C	D	E	F	G	H
	Description	Course Number	1T131	1T151	1T171	1T191	T1T151	LSO
1	Aircrew Life Support Officer Course	S-V8G-A						M
2	Aircrew Life Support Apprentice	J3ABR1T131 000	M	M	M	M	M	
3	Aircrew Life Support Craftsman	J3AAR1T171 000			M	M		
4	Academic Instructor Course	(note 2)	D	D	D	D	M	
5	Combat Survival Training	S-V80-A	D	D	M	M	M	M
6	Water Survival Training (note 3)	S-V86-A	D	D	M	M	M	M
7	Airborne Parachutist Training	J5AZA11000 000					D	D
8	Life Science Equipment Investigation Course	NA			D	D	D	
9	Quality Assurance, Aircraft	J3AZR2E0066 006			D	M		
10	Operations Support Physiological Training	NA	D	D	D	D	D	D

NOTES:

1. M = Mandatory, D = Desirable.

2. ALS instructors filling aircrew training or core instructor positions must attend one of the following courses: Academic Instructor School (MAIS001), AIS Mobile Course (MAIS014), Basic AIS Mobile Course (MAIS020), ACC Life Support Instructor Course (Y120006), or Principles of Instruction Course (J3AIR3S200 002).

3. S-V90-A, Water Survival Training, Nonparachutist, may be substituted for S-V86-A.

1.17.3.3. Maintain a file for each instructor, including initial certification and annual evaluation. File completed AETC forms and dispose of in accordance with AFI 37-138. Follow disposition instructions in AFI 37-138 for these forms.

1.17.4. Personnel Requiring Life Support Training:

1.17.4.1. Aircrew members (pilots, navigators, flight surgeons, enlisted aircrew, and personnel on flight orders).

1.17.4.2. Passengers.

1.17.4.3. Personnel receiving orientation flights.

1.17.5. General Aircrew Training Requirements. Personnel will not perform aircrew flying duties until the requirements of this instruction have been satisfied. However, crewmembers may perform aircrew duties before completing a local combat survival training (CST) program and AETC formal courses: CST (S-V80-A); water survival nonparachuting (S-V90-A); or water survival training course (S-V86-A). Personnel will be scheduled to attend these courses at the earliest opportunity. General guidelines are as follows:

1.17.5.1. All AETC aircrew members will attend S-V80-A, Combat Survival Training.

1.17.5.2. S-V86-A, Water Survival School Parachuting, is mandatory for aircrews flying in ejection seat aircraft. **NOTE:** According to AFCAT 36-2223, S-V86-A is mandatory for F-15 students prior to initial qualification training (IQT), and desired, but not mandatory, for F-16 students. S-V80-A is desired, but not mandatory for F-15 and F-16 students prior to IQT.

1.17.5.3. Aircrews have priority for all survival training quotas. Request quotas for courses S-V80-A, S-V86-A, S-V87-A, and S-V90-A through AETC AOS/AOXL. Local military personnel flights (MPF) can provide wing-initiated substitutions up to 30 days before class start date. If slots are not required, contact AETC AOS/AOXL for redistribution 30 days prior to class start date.

1.17.5.4. To obtain slots for course S-V8G-A, Aircrew Life Support Officer, or C3AZR1T1X1, Aircrew Life Support Supervisor Course; forward the name, grade, SSN, and organization of personnel requiring training to AETC AOS/AOXL. AETC AOS/AOXL will confirm selectees not later than 60 days before class start date.

1.17.5.5. Formal combat survival and water survival training requirements for students are outlined in AFI 36-2209 and AFCAT 36-2223. Initial life support training will be conducted prior to the first flight to familiarize aircrew members with equipment requirements and local rescue procedures. **NOTE:** Crewmembers are not deployable until conditions of AFI 36-2209 have been met. All training will be student-centered and performance oriented. This provides instructors with a means to evaluate proficiency, determine remedial training, and improve instruction techniques. Aircrews will satisfactorily demonstrate proficiency and proper sequence to unit life support instructors. Discussion during aircrew meetings may not be substituted for required drills.

1.17.5.5.1. Crewmembers will accomplish all life support training prior to the first flight during initial aircraft qualification and requalification training according to the appropriate training table.

1.17.5.5.2. Training from other AETC units will be credited as if it was given at the new base.

1.17.5.5.3. Personnel who fly in an aircraft other than the primary aircraft will receive applicable egress training before flying in that aircraft. For example, a T-37 qualified pilot will receive T-38 egress training before flying in the T-38. This training expires with primary seat training. Personnel not already qualified in an ejection seat aircraft must also complete academic training in parachute procedures and hands-on ejection seat, hanging harness, and parachute landing fall and drag training. The following exceptions apply:

1.17.5.5.3.1. Wing LSO training in other wing aircraft expires with their primary aircraft training.

1.17.5.5.3.2. AT/T-38 pilots not trained on survival kits will receive either classroom training or a briefing by the aircraft commander on seat kit operations prior to flight in an aircraft equipped with a seat kit. No other training is required for AT/T-38 crossflow sorties.

1.17.5.5.4. All rated aircrews will receive life support and egress training as specified in this instruction.

1.17.5.5.5. UFT students will receive life support and egress training as specified in the applicable syllabus of instruction. All students will be briefed by life support personnel on shop operations, preflight and postflight inspections, and care and use of equipment before the first flight in each type of aircraft.

1.17.6. General Passenger Training Requirements. Requirements in this paragraph apply to all other personnel not previously addressed. Specific training criteria is defined in AETCI 11-401, *Aircrew Training Device Scheduling and Utilization Reporting*. Train these personnel prior to their flight. Tailor training for the aircraft to be flown and the passenger's experience level. In ejection seat-equipped aircraft, use the appropriate EPT or disarmed/safetied aircraft seat to ensure each individual successfully completes at least one practice emergency ground egress and one practice in-flight egress. Passenger egress training may be conducted by ALSIs, APU personnel, or an aircraft commander current in aircrew life support continuation training.

1.17.6.1. Passenger egress training may be conducted by using the aircraft at locations where EPTs are not available. Use EPTs as the primary means of conducting ejection seat air and ground egress training. If an EPT is not available, conduct training in a simulator or aircraft.

1.17.6.2. When an ejection seat aircraft is used, a certified egress technician will make ejection seats safe for maintenance for this training. **NOTE:** The handgrips (or ejection controls) will be pinned (safed) and will not be raised even though the ejection seat is made safe and used for training.

1.17.6.3. Passengers who fly on a recurring basis (three or more flights per quarter) and who are unable to meet the requirements as stated in paragraph 1.17.12.2 should provide sufficient justification to AETC AOS/CC, who may waive this requirement on a case-by-case basis.

1.17.7. Lesson Plans. AETC AOS/AOXL must approve all life support training lesson plans. As a minimum, lesson plans will include the following: purpose, objectives, course outline, requirements, responsibility, method of presentation, evaluation, references, and training aids. Units will use weapon-specific standardized course lesson plans during all LS continuation training classes. Units may add information to standardized lesson plans for their specific mission needs. These lesson plans should be

standardized as much as possible for each weapon system. Training sessions may be combined to satisfy all requirements (for example, life support equipment training may be conducted during water survival training) as long as all objectives are fully met.

1.17.7.1. Initial Training. Conduct initial life support training before the first flight. Initial training should familiarize the crewmember with equipment, local procedures, requirements, and services provided by life support. This may include a snapshot tour of the life support section and applicable areas. All aspects of life support training should be covered to the extent necessary to fly locally. Crewmembers arriving PCS who are qualified in the same weapons system may maintain training currency dates previously established.

1.17.7.2. Egress and Hanging Harness Training. Training will include egress, hanging harness, and situational awareness (such as, dive angles, sink rate, and cockpit stresses). Egress and hanging harness training should be conducted concurrently when practical. Situational awareness (for example, drive angles, sink rates, cockpit stress) training will be done during egress and ejection training. Aircrew members will accomplish egress and hanging harness training before the first flight during initial aircraft qualification and requalification training. Thoroughly brief and demonstrate the location, care, use, and preflight inspection of all life support equipment carried aboard unit aircraft or issued to crewmembers. Aircrew members arriving PCS or visiting aircrew's, such as IG team members, are not required to accomplish egress and hanging harness training if source documentation of the aircrews currency can be obtained (i.e., AFORMS) and aircrews are current in the assigned aircraft; however, training on unique local equipment and survival/rescue requirements will be accomplished.

1.17.7.2.1. Instruction includes hands-on egress procedures for normal and emergency execution (primary and secondary) of the ground and air (if applicable) egress procedures. Includes preflight, donning, hands-on post ejection, bailout, control-and-descent, parachute landing procedures, parachute malfunctions, use of personal lowering device (PLD) if equipped, and recovery procedures after parachute landing (required for aircraft where parachutes are available for use).

1.17.7.2.2. Aircrew members flying ejection seat-equipped aircraft who are delinquent in egress and hanging harness training must be trained before the next flight. **NOTE:** Only rated instructors will instruct situational awareness and ejection decision.

1.17.7.3. Life Support Equipment and Local Area Survival Training. These training sessions may be conducted concurrently with egress training. Thoroughly brief and demonstrate the location, care, use, and preflight inspection of all LSE carried aboard unit aircraft or issued to crewmembers. Training includes hands-on operation of assigned LSE and signaling devices, to include flotation equipment. Survival needs, environmental conditions, natural resources, and local rescue procedures that will benefit or hinder an aircrew member's survival or rescue in the local operational area is also covered. Ensure crewmembers are aware of their responsibilities for passenger equipment and safety briefings.

1.17.7.4. Water Survival Training (WST). Training frequency and level of hands-on training is based on type of aircraft flown. WST will consist of hands-on training for each crewmember with all weapons system-specific flotation devices and components available during an overwater emergency. Training is also given in water on post egress and ejection procedures, drag procedures, canopy entanglement, and liferaft/life preserver operations. Training will emphasize the use of appropriate passenger support equipment.

1.17.7.4.1. Conduct training in a pool (open water is preferable) and take necessary precautions to ensure the safety of crewmembers and instructors. The objective is to emphasize survivor needs using water-related equipment and procedures.

1.17.7.4.2. Aircrew members arriving at a new station requiring water survival refresher training after that installation has completed training for the year are not considered to be delinquent until the next training period. However, as a minimum, individuals will be scheduled to attend an academic session at the earliest possible time.

1.17.7.4.3. Units who fly over water infrequently may include WST with annual life support training.

1.17.7.5. **Helicopter Emergency Egress Device (HEED).** All helicopter crewmembers must attend one-time (initial) underwater egress training (UET) class S-V84-A, as specified in AFCAT 36-2223. As a minimum, crewmembers receiving refresher training will view the UET video (606040DF).

1.17.7.6. **Aircrew Chemical Defense Training (ACDT).** This training includes indepth instruction and demonstration/performance of donning, post bailout procedures, decontamination, doffing, contamination control area (CCA) procedures, redonning and limitations associated with the wear of aircrew chemical defense ensemble (ACDE). Individuals who accomplish initial ACDT at a previous unit will receive credit for initial training on arrival at the new permanent duty station. Initial or refresher training is required for mission ready (MR) aircrews with mobility positions and for students (if it is a syllabus requirement).

1.17.7.7. **Combat Survival Training (CST).** CST consists of a minimum 1-day exercise comprised of parachuting principles (if applicable), physiological and psychological (will to survive) factors, personal protection, land navigation, combat recovery, and signaling and communications. An evasion scenario will incorporate the above items and hands-on use of life support equipment available in specific weapons systems. This training is required for MR aircrews with mobility positions and for students (if it is a syllabus requirement).

1.17.7.7.1. Tailor CST to individual experience levels, local climatic conditions, and unit mission.

1.17.7.7.2. Aircrews completing survival training (S-V80-A) within 6 months of arriving at an AETC unit will use the date they completed training as their initial CST date.

1.17.7.7.3. Crewmembers participating as survivors during local survival combat search-and-rescue (CSAR) exercises, JCS-sponsored evasion exercises, or joint readiness training will receive credit for CST provided all requirements in this paragraph are met and documented. Units without a mobility commitment may incorporate CST principles into annual life support training.

1.17.8. **Aircrew Life Support Training Program Management.** WLSO/LSQM will randomly attend and review training sessions and critique for the following: course presentation and instructor knowledge; condition and use of training aids; student involvement; and hands-on aircrew-demonstrated proficiency training.

1.17.9. **Standardized Aircrew Life Support Training.** Attachment 2 provides training frequencies/designations for weapon systems unless otherwise stated in other consolidated training instructions (table A2.1). One training session may cover one, several, or all of the required blocks of training. Unless otherwise stated, training is required on all equipment available to aircrews and

passengers. **NOTE:** LST-6 Aircrew Chemical Defense Training includes any USAF WMP Annex J-directed familiarization requirements.

1.17.10. **Currency Definitions.** Training is good through the last day of the applicable month following continuation training using the following definitions (unless otherwise defined in another continuation training instruction).

1.17.10.1. Annual will be interpreted as not to exceed 12 months from the date of last completion.

1.17.10.2. Biennial will be interpreted as not to exceed 2 years from date of last completion.

1.17.10.3. Triennial will be interpreted as not to exceed 3 years from the date of last completion.

1.17.11. **Training Equipment:**

1.17.11.1. Hands-on training of all critical equipment (that is, escape, descent, flotation, and signaling) is essential to maximize the aircrew recall while in shock. This performance training is critical to ensuring information has been absorbed and understood. Observe performance and provide the required feedback and repeat performance to ensure competency. Training equipment will mirror equipment installed in aircraft. Avoid simulations where possible.

1.17.11.2. EPTs and other training aids should be located in a distraction-free area. Configure training equipment as it is worn and as it will be available for hands-on operation. Rig four-line jettison loops so they are retracted in the storage flute. Aircrews will be given hands-on training on how to untwist risers and break riser tackings to facilitate using the four-line stability modification.

1.17.11.3. Permanently mark or stencil all life support equipment used for training purposes according to applicable TOs or this instruction. Stencil or mark items not specifically addressed "FOR TRAINING USE ONLY" in 1/4-inch to 1-inch lettering depending on the size of the item.

1.17.11.4. The wing life support staff will perform periodic inspections of training aids and devices. Conduct and document periodic inspections to ensure currency and safety of egress procedures trainers, hanging harness devices, and water survival equipment.

1.17.12. **Scheduling:**

1.17.12.1. Aircrew initial and continuation life support training scheduling is the responsibility of each aircrew member. Each LSO will establish procedures to identify individuals requiring training. Refer aircrews identified as overdue training to their operations officer.

1.17.12.2. Passenger life support training is valid for 72 hours and should be scheduled not more than 3 days before the planned flight. This training period may be extended to 7 days by reviewing the ground and air egress procedures with the passenger before each flight.

1.17.12.3. Unless waived by the OG/CC, crewmembers who are overdue continuation life support training will not be permitted to fly until training is received.

1.17.13. **Currency Application.** Crewmembers who require training during any specific phase according to MCI 10-202, volumes 2, 4, 5, 6, and 7 will be scheduled as closely as possible to the required cycle.

1.17.13.1. Individuals requiring training are not considered delinquent until the first day of the following month.

1.17.13.2. Individuals who become delinquent while deployed must accomplish training upon return to home station and prior to their next flight.

1.17.14. **Documentation of Training.** The SLSO will maintain a record (preferably in AFORMS) of all training conducted by the unit. Dispose of the record according to AFMAN 37-139, *Records Disposition Schedule*.

1.17.15. **Operators of In-Flight Video and Sound Equipment in Ejection Seat Aircraft.** When video or sound equipment is authorized for use in UFT units, the WLSO or SLSO will train the operator on proper storage, operational concerns, and ejection procedures. These procedures are addressed in attachment 3. All other units will develop procedures and send them to AETC AOS/AOXL for approval.

1.17.16. **Local Rescue Agencies.** Ensure these agencies are provided training on the functional use and operation of ALSE that may be encountered during rescue operations. Advise local rescue agencies of any changes in equipment type or operation. Additionally, inform them of problems they may encounter based on injuries of personnel who have recently ejected (such as, shock, back injuries, etc.).

1.17.16.1. Collect data on the rescue agencies' methods and equipment and include it in the lesson plans.

1.17.16.2. Work with the local crash recovery teams to pass on special handling instructions of downed aircrews and how to properly preserve the accident site.

Section 1D--Quality

1.18. **The AETC Life Support Quality Programs.** Life support quality programs are designed to provide feedback to technicians, trainers, supervisors, and managers to eliminate defects and deviations from established guidance.

1.19. **Quality Inspection Requirements.** LSE quality inspectors are highly experienced five-skill level technicians or above trained and certified in the quality inspection process and the documentation and tracking requirements. Document these qualifications in the individuals' training records.

1.19.1. **Quality Control Inspection (QCI).** QCI is a process of visual examination (without disassembly) of specific life support items to ensure the highest level of product quality.

1.19.1.1. Perform QCIs on at least 10 percent of each type of equipment inspected daily and 100 percent of all items received from other supporting agencies. QCIs should be performed prior to the next flight; however, they must be accomplished no later than 1 duty day after scheduled inspections.

1.19.1.2. Personnel parachutes post-repack acceptance inspection satisfies this requirement; however, 100 percent of the parachute documentation must receive a QCI.

1.19.1.3. Document QCIs on inspection records adjacent to the current inspection entry on records. Document findings on AF Form 2420, **Quality Assurance Inspection Summary** (to include "no defects"); maintain for 6 months.

1.19.2. **In-process Inspection (IPI).** An IPI is a check of critical requirements prior to closing a piece of equipment (survival kits, parachute spacer kit (PSK) etc.). The technician will correct safety-related defects prior to the piece of equipment going back on the serviceable rack.

1.19.3. **Trend Resolution (TR).** Use TR to determine both negative and positive trends. Track findings to improve technician performance and reflect the state of the LSE in the unit. Trend findings will be given to the technician at least monthly for corrective action. Use the TR to develop a supervisor's performance evaluation that documents specific adverse trends requiring corrective action, such as:

1.19.3.1. Remedial training for individuals who did not know of requirement (input into technician training plans). Safety-related deficiencies will lead to decertification training where required and recertification.

1.19.3.2. Accountability counseling to ascertain why a knowledgeable technician failed to complete a task requirement (such as, lack of attention, attitude, other problems diverting attention, etc.).

1.19.3.3. Problem areas beyond the technician's control (such as, process deficiencies, lack of equipment, supplies, tools, etc.) that may prevent the technician from meeting standards. These issues will be readdressed to the appropriate supervisor for correction.

1.19.4. **Accountability.** This information is fundamental in developing accountability for one's actions. The quantity and quality of inspections performed is a key measurement of a technician's performance and should be included in the airman's feedback and performance reports.

1.20. Quality and Standards Assessments. These assessments are conducted by the unit and wing life support quality manager or LSO. They give detailed feedback to technicians and supervisors on how the job is being done. This includes LSE quality inspections, aircrew no-notice training evaluations, and support programs assessment.

1.20.1. Document the findings (positive and negative) found during the assessment in a report. Additionally, propose ways to fix the problem areas.

1.20.2. Use TR to quantitatively measure shop performance against historical (previous assessments) standards. A metric reflecting aircrew training effectiveness and equipment quality will be based on examples in AEPD 11-3.

1.20.3. Units will track their performance metric using information collected during their self-inspection program. The metric will contain the last 3 years of data.

1.20.4. The WLSO or LSQM will track the performance of each unit on a unit metric using data collected on all quality visits (no-notice and scheduled). The metric will contain measurements for the last 3 years.

1.20.5. Each wing will develop a consolidated wing metric for aircrew performance training quality, equipment quality, and customer satisfaction. Chart by weapon system and unit quarterly for the last 12 months and annually for 2 additional years. This data will be used in addition to Inspector General and staff assistance findings to develop a command metric as directed in AFPD 11-3.

1.20.5.1. The aircrew performance metric will contain the total number of aircrews evaluated, number of major discrepancies, number of minor discrepancies, actions taken to improve results (in a remarks section), date, and OPR.

1.20.5.2. The LSE quality metric will contain the total number of equipment inspected, number of major discrepancies, number of minor discrepancies, actions taken to improve results (in a remarks section), date, and OPR.

1.21. Product Quality Deficiency Report/Report of Discrepancy (PQDR/ROD). LS technicians must document quality deficiencies to ensure corrective action is addressed. To report ALSE deficiencies, personnel will be thoroughly familiar with and report according to TO 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*.

1.21.1. All LSE found to be defective (other than normal wear and tear) will have a PQDR (ROD for local purchase items) submitted on it within 5 duty days.

1.21.2. Any ALSS component reported in a PQDR/ROD will not be disassembled or tampered with until guidance is received from the applicable OPR.

1.21.3. Send an informational copy of each PQDR to AETC AOS/AOXL within 1 workday of submission.

1.22. Publications and Technical Orders. Maintain publications according to AFI 37-160, volume 7, *The Air Force Publications and Forms Management Programs- Publication Libraries and Sets*.

1.22.1. The wing life support office or LSQM will maintain a master TO file to support each item of equipment serviced in the wing according to TO 00-5-2 and AFPD 21-3, *Technical Orders*. The wing LSQM may opt to use unit TO copies if the unit maintains a master listing of all unit TOs, TOs are readily available, and TOs are used for familiarization and reference.

1.22.2. Each work center will maintain only those TOs required to service equipment items used by the work center according to TO 00-5-2 and AFPD 21-3.

1.22.3. Track the status of the active life support related TCTO.

1.23. Facilities. TO 15X-1-1, paragraphs 2-1 through 2-11, applies. Unit floor space requirements are driven by mission needs and are not limited by the TO. The AETC Ops Way facilities guide should also be used in planning new or updating existing facilities. Contact AETC AOS/AOXL to obtain a copy. Life support sections must be air-conditioned; however, expensive precision humidity- and temperature-controlled systems are not warranted.

1.24. Hazardous Communications Program. Each unit will ensure that each hazard in its work

environment is identified to Military Public Health (MPH) for assessment and abatement procedures and training. These hazards include noise, heavy lifting, working with high pressures, toxic fumes, explosives, infectious diseases, etc. The MPH will provide or review the training material. Properly document the training and abatement equipment for each individual exposed to shop hazards.

1.25. Infection Control. Persons working on life support equipment will receive hazard training approved by MPH that will address the following safety issues:

1.25.1. Using latex gloves, NSN 6515-01-150-2978 or equivalent, on any equipment, such as oxygen masks and helmets, that may be contaminated.

1.25.2. Washing hands after removing gloves and immediately after contact with blood or other potentially infectious material.

1.25.3. General guidelines for sterilizing, disinfecting, housekeeping, and waste disposal.

Section 1E--Life Support Equipment Requirements

1.26. Purpose of Life Support Systems and Equipment. Life support systems and equipment are designed to maximize safety, sustain aircrews and passengers during all phases of flight, and to enhance human survivability in situations resulting in ejection, bailout, crashlanding, emergency egress, or ditching.

1.26.1. Aircrews and passengers must be provided with functional life support systems and equipment to enhance safe mission accomplishment. This section provides guidance on the use of life support items and authorized equipment, and it prescribes the minimum ALSE to be worn by aircrews or passengers aboard AETC aircraft. Specific ALSE requirements will be identified in later chapters.

1.26.2. Use of computer-generated forms to automate the tracking of equipment maintenance, inspection, time change requirements, and budgeting is authorized. Automated systems must meet AFTO form requirements and be standardized throughout the wing.

1.26.3. Ensure data storage mediums (disk or tape) are backed up at least once a week in case a system failure occurs. Units will maintain at least 12 months of historical inspection documentation in either hard copy, on disk, or on tape. Units will record all equipment inspections using either AFTO forms or automated systems. Units using automated tracking systems are not required to maintain duplicate AFTO forms or status boards; however, units will continue to maintain inspection tags or booklets attached or installed in equipment items.

1.26.4. AETC AOS/AOXL must approve the use of automated tracking systems (such as locally developed systems) other than CAMS/ALSMS. Locally developed checklists must be according to TO 00-5-1.

1.26.5. Equipment exceeding day-to-day mission requirements, but required for contingencies or aircraft transfers, may be placed in "serviceable storage." However, inspection and storage procedures for "stored equipment" established in applicable TOs and publications will be followed without deviation. All equipment will be maintained in "ready for use and inspect prior to issue" status with all TCTOs and

modifications complied with. Units should establish procedures to fit or issue equipment based on local mission commitments and time constraints.

1.27. Responsibilities:

1.27.1. Commanders will:

1.27.1.1. Ensure compliance with requirements pertaining to ALSE in AFI 11-206, this instruction, applicable TOs, and aircraft operational flight manuals.

1.27.1.2. Restrict from flying any aircrew member who does not demonstrate required proficiency or maintain required training currency as defined in this instruction.

1.27.1.3. Ensure life support training is properly documented according to this instruction.

1.27.1.4. Ensure adequate training facilities or sites are available for all required survival continuation training.

1.27.1.5. Develop and follow supplement to specify the type of seasonal clothing, temperature ranges and (or) the calendar months, and specific operational missions when seasonal flying clothing is worn. General flight clothing requirements are in AFI 36-2903. Deviations should be processed using AF Form 1000, or other authorized means.

1.27.1.6. Ensure flying clothing is compatible with the mission, climate, and terrain features involved. When determining the proper clothing combination, consider the forecast surface chill factors and air temperatures for the duration of the flight to include departure, en route, and training areas. Climatic zones are defined in the preface of AS 016 and should be used as a source for recommended winter wear.

1.27.1.7. Ensure aircrew members and passengers are issued flying clothing and equipment, and ensure the equipment is adequate for mission requirements.

1.27.1.8. Ensure aircraft commanders know their supervisory responsibilities to prevent loss of ALSE.

1.27.1.9. Ensure aircrew members who wear contacts or use high contrast visors (HCV) are examined by the flight surgeon or optometrist and are authorized these items.

1.27.2. Aircraft commanders will ensure:

1.27.2.1. Each aircrew member and passenger is wearing the required clothing and equipment or has it aboard the aircraft and readily available for flight.

1.27.2.2. Each aircrew member and passenger is trained and briefed on proper use, storage, location, and care of available ALSE prior to takeoff.

1.27.2.3. Life preservers are worn or carried on all overwater flights as specified in this instruction and AFI 11-206. Helicopters, tankers, and airlift aircraft scheduled to fly over water will have an approved emergency flotation device aboard and within reach of each seated occupant. Aircrew members may use passenger-type life preservers when parachutes are not required.

1.27.2.4. Sufficient life support equipment is aboard the aircraft according to this instruction.

1.27.2.5. Aircrew members and passengers are familiar with the location of available life support equipment prior to takeoff.

1.27.3. Aircrew members will:

1.27.3.1. Ensure authorized flying clothing and equipment are on hand and maintained in a serviceable condition.

1.27.3.2. Be responsible for obtaining personal flying equipment (flight suits, boots, gloves, etc.) from supply, maintaining accountability, and ensuring availability for maintenance.

1.27.3.3. Wear or carry equipment as specified and required by this instruction and local supplements.

1.27.3.4. Preflight equipment and ensure it is available to life support personnel for required periodic inspections.

1.27.3.5. Possess an individually issued/fit oxygen mask (does not apply to aircrew members who fly in aircraft that have prepositioned oxygen masks or no oxygen system). Either quick-don assembly part number 450-1010 or 450-481A may be issued to nonhelmeted aircrew members. Quick-don assembly part number 450-481A must be individually fit. Dedicated crew chiefs may be issued a quick-don oxygen mask with suspension assembly.

1.27.3.6. Ensure oxygen masks are postflight inspected and cleaned after the last flight of the day. **NOTE:** Aircrew members assigned to UFT wings may perform equipment postflight inspections and oxygen mask postflight cleaning (if trained properly) according to this instruction and the instructions posted in the life support shop. Towelettes, NSN 8540-00-782-3554, may be used to clean MBU-5/P, 12/P, and 20/P oxygen masks on cross-country and out-and-back missions. (Do not use towelettes on custom oxygen masks.)

1.27.3.7. Ensure the zero delay lanyard snap hook is stowed on the parachute D-ring, and stow the parachute arming lanyard on the snap provided. Take special precautions to prevent water, oil, fuel, or hydraulic fluid from coming in contact with the parachute.

1.27.4. Aircrew life support personnel will:

1.27.4.1. Ensure personnel are qualified to inspect and maintain assigned ALSE. Document certification according to AFI 36-2201.

1.27.4.2. Ensure life support equipment is maintained according to this instruction, TOs, and higher-level directives.

1.27.4.3. Store, handle, service, and account for items that are part of the 412A life support system.

1.27.4.4. Ensure qualified personnel accomplish inspection, maintenance, repair, movement between aircraft, removal, and installation of ALSE.

1.27.4.5. Perform the prior-to-issue and periodic inspections on ALSE using TOs, MAJCOM-approved manufacturers' technical guidance, and this instruction. Approved MAJCOM options are listed in attachment 4. Send recommendations for additions or deletions to the options listing to AETC AOS/AOXL. Coordinate with field maintenance activities and base medical supply offices to ensure completion of scheduled inspections and maintenance on survival equipment and first-aid kits.

1.27.4.6. Develop a system to notify aircrews that their ALSE needs to be refitted before the next flight on items such as oxygen masks, helmets, parachutes, torso harnesses, and anti-G suits that have been repaired or have had components replaced that could affect proper fit.

1.27.4.7. Ensure that when the unit receives a new or different aircraft an acceptance inspection is performed on aircraft-installed life support equipment according to TO 00-20-1. Items to be inspected will consist of, but not be limited to, the following items:

1.27.4.7.1. Visual inspection of all life support equipment.

1.27.4.7.2. Inspection of survival accessories for serviceability and adherence to the minimum mandatory component lists specified in this instruction.

1.27.4.7.3. Inspect and test the survival kit and components for serviceability according to TOs. Document discrepancies according to TO 00-20-1 and TO 00-35D-54.

1.27.4.8. Ensure aircraft are properly equipped for mission and accomplish a premission departure check of prepositioned ALSE. Ensure all equipment inspection due dates are current for the duration of scheduled mission/deployment. On strategic airlift and tanker aircraft, accomplish a mission termination inspection (MTI) of prepositioned ALSE.

1.27.4.9. Prior to aircraft transfer, accomplish inspections on the survival kit and accessories as specified by TO 00-20-1. Survival kit containers will include, as a minimum, mandatory components as specified in TO 14S1-3-51, TO 14S-1-102, and this instruction.

1.27.4.10. Ensure aircraft are properly equipped for mission and equipment is prepositioned to the maximum extent possible. Preposition and seal ALSE in A-3 bags (or equivalent) when possible. **NOTE:** Seals used on bags containing emergency life-saving equipment will detach without the use of tools. Seals are used to detect tampering--not to impede access to equipment.

1.27.4.11. Remove and properly store prepositioned ALSE from unit aircraft for recurring inspections, as required for maintenance inspections, and during each major isochronal inspection. The intent is to safeguard and prevent damage to the equipment during aircraft maintenance.

1.27.4.12. Ensure prepositioned ALSE (multi-place aircraft) is annotated on AFTO Form 46, **Prepositioned Life Support Equipment**. Prepare an original and one copy of the form and file the original with AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**, or maintain in a separate folder at N/AV station. Maintain the duplicate copy in the life support shop. Destroy AFTO Form 46 when equipment is removed from the aircraft.

NOTE: Aircrew life support personnel are not responsible for storage, handling, servicing, or

accountability of items such as thermos jugs, fire extinguishers, aircraft portable oxygen cylinders, prebreather oxygen assemblies, headsets, pyrotechnic flare pistols, passenger service equipment, aircraft escape slides, or other items not related to the 412A System.

1.27.4.13. Ensure compliance with requirements pertaining to ALSE in AFI 11-206, this instruction, applicable TOs, and aircraft operational flight manuals.

1.27.4.14. Ensure aircrew members and passengers are issued flying clothing and equipment, and ensure the equipment is adequate for mission requirements.

1.27.4.15. Ensure operational MQ-1 testers and adequate oxygen supply are available in each aircrew life support section.

1.27.4.16. Ensure all life support equipment is postflight inspected.

1.27.4.17. Develop, as a minimum, visual aids according to attachment 5 to support preflight and postflight of ALSE.

1.27.4.18. Inspect and repack survival vests, kits, inner and outer liferaft accessory containers, and applicable components.

1.28. Related Maintenance and Base Support Activity Responsibilities. The following information is for reference and may be superseded by more specific guidance. Life support will accomplish the applicable forms and (or) maintenance documentation and coordinate with support activities to ensure inspection and maintenance capability.

1.28.1. Survival Equipment Element:

1.28.1.1. Inspect, repair, modify, and pack personnel parachutes, harnesses, liferafts, life preservers, anti-G suits, anti-exposure suits, and organizational equipment according to applicable TOs, commercial guidance, and this instruction. Document work on required inspection forms.

1.28.1.2. Input time-change data (forecast) in CAMS, budget, and provide replacement time-change parts, such as parachute components, delay cartridges, etc., and obtain serviceable carbon dioxide or compressed air cylinders. This may be waived at the wing commander's discretion.

1.28.2. Egress Element:

1.28.2.1. Removes and reinstalls aircraft-installed integral parachutes and survival kits as required. Clears the Red-X symbols after an egress final inspection of the overall ejection seat system.

1.28.2.2. Conducts cockpit familiarization training for life support personnel as required by AFI 21-112.

1.28.2.3. Provides maintenance, update, and modification of EPTs used by life support to conduct training.

1.28.2.4. Inputs time-change data in CAMS on related equipment and budgets for and replaces these

items as required.

1.28.3. Aircraft Electrical Environmental System Element. Provides inspection, refilling, overhaul, and replacement of liferaft carbon dioxide cylinders and aircraft-installed emergency oxygen cylinders, as required by life support, egress, and survival equipment sections.

1.28.4. Plans, Scheduling and Documentation Section:

1.28.4.1. Notifies the life support section of all new aircraft arrivals and transfers to expedite the processing of appropriate records.

1.28.4.2. Contacts the life support section to perform incoming aircraft acceptance inspections of survival kits, parachutes, and other aircraft-installed life support equipment.

1.28.4.3. Aids LSQM in preparing time-change forecasts.

1.28.5. Flight Medicine/Medical Support:

1.28.5.1. Visits the life support section quarterly to ensure compliance with TO 15X-1-1 standards.

1.28.5.2. The environmental health section checks environmental controls for adequate operation and safe performance.

1.28.6. Medical Support:

1.28.6.1. Inspects and maintains first aid kits according to applicable instructions and replaces unserviceable components as necessary. Medical supply personnel maintain supplies such as alcohol and gauze pads.

1.28.6.2. MPH inspects survival rations and emergency drinking water.

1.28.7. Aerospace Physiology. APU instructors may give life support training when using lesson plans approved by AETC AOS/AOXL and the quality of training is evaluated by wing and MAJCOM life support personnel to ensure consistent quality for students and instructors.

1.28.8. Aircraft Maintenance Units (AMU):

1.28.8.1. Install or remove and maintain all emergency egress descent devices, palletized seat kits, and automatic oxygen mask presentation units.

1.28.8.2. Install or remove escape slides and multiplace liferafts that are attached to the aircraft in wing wells, overhead cradles, silos, or raft-launching devices. Transport equipment to and from the survival equipment shop or life support section as local directives dictate for periodic inspections.

1.29. Clothing Requirements. Aircrews will comply with flight clothing guidance in AFI 11-301 and attachments 6 and 7 of this instruction.

1.30. Life Support Equipment:

1.30.1. **Requirements.** US Air Force aircrews flying with other services will wear the same clothing and LSE as host service aircrews unless otherwise directed. Other service and foreign personnel flying with AETC units will use LSE identified in this instruction unless approved by the US Air Force and this office. This will ensure compatibility with the aircraft and established training programs. Host services or units are responsible for the safety of all aircrew assigned to their flying units.

1.30.2. Equipment and Supply Procedures:

1.30.2.1. **Spare Equipment.** Life support units are authorized 10 percent spare equipment (exchange assets) to configure and support aircraft operations. Units may also maintain 10 percent spare parts to keep assembled assets operational. This authorization may be exceeded to permit complete sets of exchange equipment.

1.30.2.2. **Authorized Equipment.** Units must not exceed equipment authorizations as stated in the applicable allowance standard and this publication. The equipment must be in use. If operational and special requirements exist that require increased authorizations, units will submit AF Form 601, **Equipment Action Request**, through local supply to request an amendment to the allowance standard.

1.30.2.3. **Bench Stock.** Units will establish and use bench stocks as the primary means of managing sustainment parts. Manage accounts closely in accordance with AFMAN 23-110, volume 2, part 2, chapter 25, *USAF Supply Manual*, to prevent quantities from falling below sufficient levels. If on-hand quantities fall to zero, order parts through demand processing using a higher priority to expedite the order. Do not stockpile excessive quantities of stock as this demonstrates poor supply discipline. Units unable to establish bench stock should have the LSQM send justification to AETC AOS/AOXL for review.

1.30.2.4. **Special Levels.** The LSQM will use AF Form 1996, **Adjusted Stock Level**, to ensure special levels are established on each life support major assembly (helmet, oxygen mask, G equipment, etc.) issued to students. Ensure AF Form 1996 is fully justified by including such factors as class size and mission impact. As a minimum, maintain a six class or 6-month level to prevent training stoppage. These levels will be reviewed annually to reflect current student loads. Notify AETC AOS/AOXL immediately of a major LS item shortage.

1.30.2.5. **Forecasting.** Accurate forecasting is critical to ensuring assets are available when required. Follow TO 00-20-9 and AETC procedures to document your unit requirements. Out-of-cycle requests must justify why an item was not identified properly in the forecast and the corrective action taken to prevent future out-of-cycle requests.

1.30.2.6. **Followup Procedures.** Units will initiate all followup actions through local base supply. Use established supply procedures (supply assistance and supply difficulty memorandums with mission impact statements, etc.) to expedite delivery of outstanding requisitions. Mission impact statements must convince item managers of the urgency and justification to acquire the item ahead of other bases. Send information copies of the mission impact statement to AETC AOS/AOXL. AETC AOS/AOXL will work with depots and DLA to expedite issue of critical assets and to reallocate AETC assets to meet mission requirements.

1.30.2.7. **Budget.** Units are responsible for submitting complete and accurate budgets for required equipment and supplies to meet mission needs. Consider the previous year's budget, replacement supplies, increased student loads, manufacturers' increased prices, higher headquarters initiatives, etc., when preparing budgets.

1.30.2.7.1. **Budget Execution Review (BER).** LSQMs and NCOICs can improve funding for unforecasted critical items by working with resource advisors to provide inputs through the wing-level BER process for unfunded critical items.

1.30.2.7.2. **Price Challenge.** Another important part of managing the budget is monitoring price increases. Life support supervisors will initiate price challenges when suspected price increases appear unreasonable or unjustified. Do this by going through the zero overpricing program (ZOP) managed by base supply.

1.30.2.8. **Excess Items.** LSQMs will take action to ensure units do not maintain excessive quantities of supplies on hand. They will also ensure units have separated serviceable equipment from unserviceable equipment, and that items are tagged with appropriate condition tags and turned in for repair or replacement in a timely manner.

1.30.3. **Helmets:**

1.30.3.1. Helmets must be either HGU series custom fitted (mandatory for ejection seat and fixed wing aircraft) or SPH-4 series (mandatory for helicopters), equipped with a single or dual visor and USAF-approved earcups. Use helmet bags to transport helmet and mask outside of the life support section. International students may use their helmets if systems are compatible; however, continued use will depend upon availability of maintenance procedures and replacement components.

1.30.3.2. Helmets will be inspected at 30-day intervals when used with a mask; otherwise, they will be inspected at 90-day intervals. Ensure visor lenses are trimmed to match the oxygen mask being used.

1.30.3.3. Helmet visor housing and HGU-55/P lens covers may be customized in accordance with technical guidance. Visor housings may be customized by using elastomeric film (decals), tape, or equivalent materials. Designs must not interfere with visor operations or the night vision goggle (NVG) mounting bracket.

1.30.3.4. Helmet shells will be painted subdued factory gray or olive green (SPH-4 series).

1.30.3.5. Units will develop a method to track component replacement for helmets and oxygen masks.

1.30.4. **Visors:**

1.30.4.1. Use of the high contrast visor (HCV) is restricted to F-15 and F-16 crewmembers. Flight surgeons must certify normal color vision before an aircrew may use an HCV.

1.30.4.2. Laser protection visors (LPV) will be worn only when necessary to meet mission requirements.

1.30.5. **Night Vision Goggles (NVG) and Night Vision Devices (NVD).** Life support is responsible for organizational level maintenance. This includes storage, issue, cleaning, minor adjustments, abbreviated operational checkouts, and battery changes. When available, the primary support equipment will be the assessor (a compact, handheld unit for determining operational readiness of goggles).

1.30.5.1. Store NVGs and NVDs in a secure area when not in use and issue to aircrew members using AF Form 1297, **Temporary Issue Receipt**. Use a ledger to document problems encountered during flight or

required maintenance.

1.30.5.2. The helmet mounts listed in TO 12S10-2AVS6-21 and TO 12S10-2AVS9-2 are the only mounts authorized to be used on the HGU-55/P helmet.

1.30.5.3. Intermediate-level maintenance will be performed by AFSC 2A1X1 (sensors) or AFSC 2A1X3 (comm/nav) personnel. *Exception:* Life support personnel perform maintenance at Little Rock AFB. Annotate inspection on AFTO Form 244, **Industrial/Support Equipment Record**, or equivalent.

1.30.5.4. Use extreme care when handling lithium batteries. Report battery mishaps, to include venting, to appropriate safety authorities and AETC AOS/AOXL as soon as possible. Units should adhere to warnings in the battery disposition/disposal handbook. This book is available through the US Army HQ Communications Electronics Command (CECOM) safety office, Fort Monmouth, New Jersey.

1.30.5.4.1. Units using lithium batteries will have a Class D fire extinguisher on hand which can be obtained through local procurement. Procure either a Lith-X or Copper-X Class D extinguisher; MET-L-X is not authorized.

1.30.5.4.2. Establish local procedures to track lithium battery lot numbers, hours of use, and hours of tube use. Standardize procedures throughout each unit and address in the supplement to this instruction.

1.30.5.5. Aircrews will be trained on the proper use of eye lanes or the Hoffman 20/20 tester (preferred method). The eye lanes will be set up according to guidance provided from technical orders (or Armstrong Laboratory if guidance not in TO). The eye chart will be rotated weekly to prevent compromise of the test validity. Life support personnel will be available to assist crewmembers with test lane use and fitting difficulties.

1.30.5.6. Aircrews will be properly fit with NVGs prior to their first flight.

1.30.5.7. Flight surgeons should check that aircrew vision is corrected (with contact lenses or plastic glasses) according to AFI 11-206, AFI 48-123, *Medical Examination and Standards*, and AL-SR-1992-0002, *Night Vision Manual for the Flight Surgeon*.

1.30.5.8. Cleaning paper will be stored with NVGs.

1.30.5.9. One set of new batteries will always be installed when issued for use. Mark the used or primary battery compartment with Velcro.

1.30.5.10. Units are responsible for developing a system to track battery service life.

1.30.6. **MBU-12/P and MBU-20/P Masks:** (*NOTE:* MBU-5/P and custom masks are only used for fit problems.)

1.30.6.1. Completely disassemble oxygen mask every 30 days if worn regularly (T and F series aircraft) and 90 days if used infrequently (airlift aircraft). Functionally check the complete communications system using communication testers every 30 days.

1.30.6.2. A small label may be applied on the mask or on the back of the helmet shell above the edge roll to identify the next helmet and mask inspection due date.

1.30.6.3. Spare masks will be inspected every 30 days and broken down and inspected after each use.

1.30.7. CRU-60/P, 266-370, and CRU-94/P Connector and Quick Disconnect:

1.30.7.1. Inspect and test the CRU-60/P, 266-370, or CRU-94/P connector and quick disconnect during the routine 30-day inspection. Document the location of the connector and the inspection on the parachute or mask inspection records.

NOTE: CRU-60/P MQ-1 check may be used as an interim method if MH-2 testers are being repaired or on priority backorder.

1.30.7.2. Inspect connectors maintained at the MQ-1 and TTU-529/E tester every 30 days and document the inspection.

1.30.8. Parachute, BA-18/22/29:

1.30.8.1. Parachutes will be worn or carried as prescribed in AFI 11-206, TO 14D1-1-1, and this instruction.

1.30.8.2. Configure the BA-18/22/29 parachute with silver key and zero delay lanyards according to TO 14D3-11-1. **NOTE:** This does not apply to airlift aircraft.

1.30.8.3. Each BA-18/22/29 parachute will be modified with a pocket according to attachment 8 and will carry personnel distress signal kit flares or SDU-5E strobe light, general purpose knife, and MK-3, type I or II mirror. Additionally, each BA-18/22/29 will be equipped with an emergency oxygen cylinder, URT-33C/M beacon, a hook blade knife, and AFP 64-15, *Survival and Emergency Uses of the Parachute*.

1.30.8.4. Inspect the signal flare kit or SDU-5E strobe light, knife, and signal mirror after each parachute repack.

1.30.8.5. Assign a local identification number to each parachute for accountability and control. Standardize the placement of numbers within the wing.

1.30.8.6. Use colored streamers to show time delay of the installed release cartridge according to TO 14D3-11-1.

1.30.8.7. Parachutes used in multiplace aircraft may be configured with either ML-4 or MD-1 survival kits. Helmets are required for bailout and must be carried on all missions when parachutes are available. Units will assess use of personnel-lowering devices and may use them as appropriate.

1.30.9. Survival Radio and Beacon. Inspect radio and beacon in conjunction with equipment installed according to TOs. Affix label NL 555 or equivalent to the radio and beacon and annotate the inspection and battery replacement date. Annotate the QCI on the proper inspection form. Set beacons installed in parachutes in the continuous mode.

1.30.10. **MXU-22/P Inflatable Lumbar Support Pad.** This USAF-approved inflatable lumbar support pad may be installed on parachutes and torso harnesses as authorized in writing by the local aerospace medicine office.

1.30.11. **Anti-G Suit, CSU-13 Series.** Use of an anti-G suit is mandatory during all flights in aircraft equipped with an anti-G system. Install an MC-1 knife (or riser cutter) on anti-G suits. **NOTE:** An MC-1 or riser cutter knife will be stored properly in anti-G suits or flight suit knife prockets.

1.30.11.1. Affix the last name and local control number to each suit prior to issue. Use of indelible ink on the manufacturer's label is authorized. **NOTE:** As an optional method for marking G-suits, affix the last name and last four digits of the individual's social security number to the inner-thigh zipper area of each suit prior to issue.

1.30.11.2. Standardize the method of marking equipment throughout the wing.

1.30.11.3. Life support personnel will launder anti-G suits when required.

1.30.11.4. Units that have anti-exposure suits will have a second anti-G suit fitted for use with the suit.

1.30.12. **Knee Boards.** Only authorized kneeboards will be used. Aircrews flying ejection seat equipped aircraft will use NSN 8465-01-012-9174 kneeboards. The AETC-improved version (8475-01-299-9830 [right], and 8475-01-301-0219 [left]) can be used as a suitable substitute. The use of all-metal checklist rings presents both safety and FOD hazards and will not be used in ejection seat equipped aircraft. Units are authorized to use the nylon or plastic covered flex-lock type ring for checklist use.

1.30.13. **Flotation Equipment.** Place sufficient types of liferafts and life preservers on board each aircraft scheduled to fly over water to accommodate all aircrew and passengers. AFI 11-206 provides additional details on over-water requirements. Configure aircraft according to aircraft configuration manuals and maintain liferaft and life preserver quantities according to this instruction. Ensure a DD Form 1574, **Serviceable Tag-Materiel**, is attached to each aircraft liferaft and raft actuation handle. Ensure the time change information is annotated on the reverse side of the tag.

1.30.13.1. **Prepositioned Liferafts.** Liferafts prepositioned on C-130 and C-141 aircraft will be inspected in conjunction with the aircraft isochronal inspection, not to exceed the requirements listed in TO 14S-1-102. Annotate due dates on DD Form 1574, AFTO Form 46, **Prepositioned Life Support Equipment**; and AFTO Form 337, **Liferaft Container Inspection Record**, to read "NEXT ISO."

1.30.13.2. **Liferaft, T-9AF (12-Month Inspection).** The liferaft is a government-furnished item and will be procured by life support. Secure the accessory survival kit to the raft boarding handle using a 10- to 12-foot length of 550-pound cord, secured at each end with a bowline knot. The fabrication branch is responsible for performing periodic inspection and authorized repair on liferafts according to Eastern Aero Marine Manual 25-60-19AF, *T9 Inspection, Maintenance, and Repair*. Life support will procure, replace, inspect, and repack liferaft accessory container and components. Annotate inspection on AFTO Form 337 or a locally developed computer-generated form and DD Form 1574. Affix DD Form 1574 to the raft case carrying handle.

1.30.13.3. **LRU-14A/A Multiplace Liferaft (NSN 4220-01-269-7384).** This is an authorized optional replacement for the T-9AF liferaft and will be inspected and maintained according to TO 14S3-8-2-1.

1.30.13.4. **Raft Accessory Containers.** Life support will inspect and repack raft accessory containers with items and accessories identified in TO 14S-1-102. **NOTE:** Manual reverse osmosis desalinators (MROD) pumps are authorized in liferaft accessory kits. Recommended equipment is one Survivor 35 per 20-person or larger raft, and one Survivor 06 for rafts rated for fewer than 20 persons. This equipment will not be used as a substitute for packaged water.

1.30.13.5. **Life Preservers.** A suitable life preserver (adult/child, infant cot, LPU-10/P, MB-1) will be available for each crewmember and passenger on overwater flights. Life preservers that are individually issued on an occasional basis will be inspected at intervals not to exceed 1 year, plus or minus 10 days. Life preservers prepositioned aboard aircraft in A-3 bags and bulk stored in life support shops for upload may be inspected during aircraft minor and major inspection cycles, not to exceed 1 year, plus or minus 10 days. Seal storage bags and attach a completed DD Form 1574. **NOTE:** Use fiberglass adhesive tape, MIL-T-4053, attached to the preserver outer container for all life preservers (except LPU-10/P, LPU-9/P, LPU-3/P, and LPU-2/P) to annotate preserver due date. Aircrew members may use passenger-type life preservers when parachutes are not required. Use either the LPU-2/P or LPU-10/P when parachutes are required.

1.30.14. **Antiexposure Suit, CWU-16/P.** When a local numbering system is used to maintain overall identity, follow procedures outlined in TO 14P3-5-61.

1.30.14.1. On nonejection seat aircraft, antiexposure suit coveralls will be readily available or worn during overwater flights when route of flight is beyond power-off gliding or auto-rotation distance from land and water temperature is 60° Fahrenheit (F) (15.5° Celsius [C]) or below.

1.30.14.2. Crewmembers of ejection seat aircraft must wear constant wear antiexposure suits (CWU-74/P, CWU-21/P, or CWU-21A/P) on any preplanned overwater flight when the water temperature is 60° F (15.5° C) or less. Commanders may waive this requirement if the water temperature ranges between 60 and 51° F (10.5° C), and the local air temperature is 70° F (21.2° C) or greater. The unit commander may waive or extend the antiexposure suit requirement after considering the following factors carefully:

1.30.14.2.1. Climate zone and existing weather (reference TO 14P3-5-81/91) throughout range of flights.

1.30.14.2.2. Operational requirements.

1.30.14.2.3. Number and type of aircraft participating in mission.

1.30.14.2.4. Amount of flight time over water.

1.30.14.2.5. Distance from land.

1.30.14.2.6. Mission altitude.

1.30.14.2.7. Risk, based on type of sortie.

1.30.14.2.8. Degree of surveillance over mission.

1.30.14.2.9. Location, availability, and capability of search and rescue (SAR) forces along route.

1.30.14.2.10. Winds and wave height and their impact on SAR operations.

1.30.15. Survival Kits and Vests. Survival kits authorized in TO 14S3-1-3 and this instruction must be assembled, maintained, and used according to directives. These kits will contain mandatory items as listed in respective chapters. Additional components may be added to supplement the mandatory components and enhance aircrew safety and survival. Kits or vests will be used when flying over remote locations where recovery time without this equipment may endanger the aircrew.

1.30.15.1. Use a sticker to post or change drinking instructions on the flexible water packet. The sticker will read "For Emergency Consumption Drink as Required." Canned water may be substituted for flexible water packet (one can per three packets).

1.30.15.2. Standardize vest pockets and component location within the wing. Use care when removing or relocating pockets. Final location of pockets should address all aspects of safety and comfort for each aircraft.

1.30.16. Protective Breathing Equipment (PBE) and Emergency Escape Breathing Device (EEBD). Units will use PBEs (P/N 802300-14) and EEBDs (P/N 802300-11) with the fire retardant polyethylene (green) storage container and neoprene neck seal. EEBD P/N 802300-11 is an obsolete part number and PBE P/N 802300-14 is considered the primary device. However, units may still use P/N 802300-11 until the unit's service life expires. Units will not substitute above items with PBE (P/N 802300-01) with the polyethylene (day-glow orange) container and urethane neck seal. PBEs and EEBDs will remain in their original "hard" carrying case to provide fire and puncture-proof protection and to reduce wear-and-tear on the vacuum-sealed bag.

1.30.16.1. PBEs and EEBDs have a service life of 15 years based on the date of manufacture. Disregard the prestamped service life indicated on the PBEs and EEBDs. (That date is for civilian use and it is based on a 10-year service life.)

1.30.16.2. On prepositioned PBEs and EEBDs, attach a DD Form 1574 and annotate date inspected, due date, and inspector's initials. Seal outer container with plastic seals (NSN 4210-01-070-5939), AFTO Form 255, **Notice Certification Void When Seal is Broken**, or equivalent, to detect tampering.

1.30.16.3. Annotate the 30-day inspection of EEBDs and PBEs on the appropriate inspection record using one form per aircraft set. **NOTE:** Because the C-130 flight deck can accommodate more crewmembers than there are oxygen outlets, all C-130 aircraft will have three EEBDs or PBEs permanently prepositioned on the aircraft.

1.30.17. Aircraft-Installed Oxygen Masks (358 Series, MBU-5/P, MBU-12/P, AWACS). As a minimum, remove masks from aircraft every 30 days and return to life support for inspection. Disassemble and clean every 90 days. Place a label on all masks, identifying the next inspection due date. Equip all aircrew oxygen masks with a microphone. Attach antismoke goggles (P/N 322-70) to each aircraft-installed quick-don mask. Install dust covers on all prepositioned masks. Place a minimum of 15

towelettes (made up of 70 percent isopropyl alcohol) on board aircraft for crewmembers to swab prepositioned oxygen masks.

1.30.18. **Firefighters' Smoke Masks:**

1.30.18.1. Only crewmembers are authorized to use the firefighters' smoke masks as an emergency oxygen and communication source.

1.30.18.2. Smoke masks will be inspected every 180 days and completely disassembled annually. Use a separate entry to indicate annual mask disassembly. Attach a DD Form 1574 to each mask and show the inspection due date. Store all masks in an appropriate container (P/N 53D3972) when prepositioned aboard unit aircraft.

1.30.18.3. Remove drawstrings from all containers. All aircraft-installed smoke masks will be equipped with rubber-type adjustment straps.

1.30.18.4. 358 series quick-don oxygen masks may be used in place of firefighters' smoke masks if sufficient quantities are available.

1.30.19. **Passenger Oxygen Masks (POM).** Life support is responsible for the maintenance of all POMs that are not contract supported. POMs may be scheduled for inspections during aircraft isochronal (ISO) and home station check inspections, but will not exceed the requirements prescribed in TO 15X5-2-4-1.

1.30.19.1. Some passenger-carrying aircraft may require appropriate maintenance agencies (such as, Environmental Control Systems) to open, remove, and install bulkhead-installed POMs.

1.30.19.2. Prior to mission departure (during preflight inspection), life support will ensure all POMs installed in a container (P/N 289-601AF2) are sealed and that any containers showing signs of tampering are replaced. This includes checking spare aircraft on the flying schedule.

1.30.19.3. Remove masks used as a result of a decompression at home station for inspection and cleaning.

1.30.19.4. Mark the mask container (P/N 289-601AF2) with the name of the owning base and AETC, ANG, or USAFR, as appropriate, in the top center rear of the metal container assembly. Do not paint the polycarbonate plastic cover.

1.30.20. **Passenger Oxygen Kits (POK).** Assemble POKs using emergency oxygen cylinders (P/N 8345205 [without red caution tag]) and a tapered passenger oxygen mask (type P/N 289-601AF8), NSN 1660-00-382-9434. Locally manufacture the POK containers according to TO 15X5-2-4-1, figure 1-2. **NOTE:** Units may replace POKs with passenger smoke and fume protection devices (PSFPD) on a one-for-one basis. Mixing configurations on the same aircraft is not allowed.

1.30.20.1. Store, issue, and preposition POKs on unit aircraft in footlockers, NSN 8460-00-243-3234, or equivalent. Number each container for control and inspection purposes with the weight stenciled on the container in 1-inch letters. Containers may be modified with locally manufactured handles. Stencil containers with 1-inch letters on the top, front, and rear with the following instructions:

WARNING

**THIS CONTAINER IS TO BE USED FOR PASSENGER OXYGEN KITS ONLY.
NO OTHER ITEMS WILL BE PLACED IN THE CONTAINER.**

1.30.20.2. Inspect POKs prepositioned on aircraft every 30 days. Inspect POKs stored in life support (prior to issue) not to exceed 180 days. Use an applicable AFTO form to annotate inspections for each set.

1.30.21. **Emergency Passenger Oxygen System (EPOS).** EPOS is the preferred passenger oxygen and smoke/fume protection. Units will configure aircraft according to applicable tables in respective chapters. As a minimum, aircraft will have one EPOS per passenger when carrying passengers. Preposition additional EPOS for increased passenger (PAX) loads.

1.30.22. PCU-17/P Restraint Harnesses and Belts:

1.30.22.1. All PCU-17/P restraint harnesses will be equipped with a connector mounting plate, NSN 1660-00-656-2522, for oxygen mask and chemical biological oxygen (CBO) mask connector. Modify PCU-17/P restraint harnesses according to TO 13A1-1-1. The modification provides a pocket for stowing the loose restraint line and a sleeve to store the restraint line snap hook for easy access.

1.30.22.2. Life support will inspect all restraint belts using TO 13A1-1-1.

1.30.22.3. Where applicable, personnel restraint harnesses will remain with the aircraft during depot-level maintenance.

1.30.23. **Protective Clothing Kit (PCK).** Perform a visual inspection of the PCK contents every 12 months to check integrity of components. Each PCK contains protective clothing for use by aircrews during emergencies onboard aircraft carrying hazardous cargo according to AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*. Neutralizers for corrosive agents are not part of the kit. For the movement of class A poisons, biological or other etiologic agents, the shipper will provide the protective equipment required for crewmembers. Minimum mandatory items are listed in attachment 9. Attach a DD Form 1574 to each container indicating the date inspected and date due inspection and use AFTO Form 338, **Survival Kit Record**, to record the inspection. Pack and seal PCKs in a locally manufactured metal or fiberglass container not to exceed 12 by 18 by 24 inches. Stencil each PCK with at least 1-inch letters with the following:

**KIT
PROTECTIVE CLOTHING
EMERGENCY USE FOR IN-FLIGHT
HANDLING OF DANGEROUS CARGO,
ACIDS, TOXIC MATERIALS,
CLASS B AND C POISONS**

1.31. Control and Storage of ALSE During Aircraft Pickup and Delivery:

1.31.1. Several ALSE items, including MK-13 and MK-124 flares, A/P25S-5/A signal kits, and strike-anywhere matches are classified as hazardous materials by the US Department of Transportation and are

prohibited from being transported aboard commercial aircraft.

1.31.2. Aircrews who must travel commercially to pick up or deliver T-37 or T-38 aircraft will ensure these items are removed from parachutes and survival kits and vests before checking them in as luggage.

1.31.3. Any hazardous items removed from ALSE after aircraft delivery will be turned in to the local life support shop for disposition. Aircrews who have hazardous items removed from their equipment are authorized a one-time flight to pick up and (or) deliver aircraft.

1.31.4. Model 11000 and Scot automatic parachute actuators are not classified as hazardous cargo by the US Department of Transportation and need not be removed if the parachute is checked as baggage aboard commercial aircraft.

1.32. Physical Restrictions. Commanders will refer personnel with physical stature difficulties to the local aerospace medicine office and the WLSO for cockpit and physical evaluations. Guidance for these evaluations is contained in AFI 48-123. Refer cases where physical restriction is confirmed to be caused by any item of ALSE to AETC AOS/AOXL. This information will then be forwarded to the Aerospace Medicine Branch (HQ AETC/SGPA) for joint resolution. **NOTE:** Local waivers or equipment modifications for physical restrictions are not authorized.

1.33. Video and Sound Equipment:

1.33.1. The use of portable video or sound equipment in ejection seat aircraft must be approved according to procedures in AFI 11-206/AETC Sup 1. See attachment 3 for training and stowage requirements.

1.33.2. Aircrew members will not modify personal ALSE to accommodate video or sound equipment.

Section 1F--Physiological Incidents (PI)

1.34. PI Mishap Investigation Procedures. Use the following guidance for preserving evidence and investigating facts and circumstances relating to in-flight physiological mishaps. These procedures must be fully understood by all qualified life support personnel before assuming early, night shift, or standby duties. These procedures must be coordinated with local flight surgeon and flight safety offices.

1.34.1. The SLSO and life support technicians may not normally respond to the aircraft during physiological emergencies. Responding agencies (Safety and (or) Flight Medicine) will conduct the "at the aircraft investigation" to include: (**NOTE:** These procedures will be accomplished for PIs involving gravity-induced loss of consciousness [GLOC], spatial disorientation, hypoxia, hyperventilation, or when any ALSE malfunction is suspected.)

1.34.1.1. Marking the mask bayonets at the aft end of the helmet-mounted receivers with a felt-tip pen or pencil to permit later identification of bayonet positions by life support.

1.34.1.2. Checking all equipment connections (including G-suit).

1.34.1.3. Checking aircraft oxygen quick disconnects.

1.34.1.4. Checking oxygen regulator settings, pressures, and quantity.

1.34.1.5. Monitoring crewmember doing an oxygen system check at the aircraft according to the aircraft Dash-1 and an MQ-1 check in life support if circumstances permit.

1.34.1.6. Impounding the mishap aircrew's ALSE, and delivering all equipment with a completed copy of AETC Form 645-4, **Trend Data Report**, to the respective life support section.

1.34.2. Life support supervisors and assistant supervisors (or persons designated in writing by the SLSO) will:

1.34.2.1. Quarantine the helmet, mask, oxygen connector, parachute (T-37/38 aircraft), and anti-G suit. Quarantined equipment will not be returned to service until actions in paragraph 1.34.1 have been completed. Place the helmet, oxygen mask, and oxygen connector in a large plastic bag until examined. Tag (with AFTO Form 1577) and segregate all suspect equipment upon arrival in the shop.

1.34.2.2. Notify the WLSO or superintendent within 1 duty day of the physiological mishap.

1.34.2.3. (Designated life support PI investigators) Fill out AETC Form 500, **Physiological Incident Investigator's Checklist**, within 2 days of every incident and send it to the WLSO immediately after completion.

1.34.3. The physiological investigator will: (These procedures will be accomplished for PIs involving hypoxia and hyperventilation, or when any ALSE malfunction is suspected. **NOTE:** If a PI occurs during nonduty hours, the standby technician will impound the equipment and contact an authorized inspector for guidance.)

1.34.3.1. Locate the affected aircrew and check fit and function of helmet, mask, and the oxygen connector on the MQ-1 or TTU-529 tester, duplicating as closely as possible the equipment fit present during the mishap. (As a technique, allow the crewmember to adjust the equipment to his or her normal position marked on the bayonets and retest.) If needed, refit the mask to the position marked on the bayonets and retest. Finally, if needed, refit the mask to the proper fitting and retest. Perform this test with and without the MD-1 hose connected to the CRU-60/P connector for PIs that involve T-37 or T-38 aircraft. **NOTE:** A leak that only shows up with the MD-1 hose connected indicates a problem in the MD-1 hose, not the CRU-60/P connector.

1.34.3.2. Inspect helmet for receiver condition and adjustment, hot spots, and general serviceable condition.

1.34.3.3. Conduct a 30-day inspection on the mask and oxygen connector.

1.34.3.4. Inspect emergency oxygen bottle (MD-1) in the parachute for deterioration, cuts, or pinholes in the hose, and the hose connector for damage (ensure it will properly connect to the CRU-60/P elbow inlet fitting).

1.34.3.5. Conduct a 120-day inspection on the anti-G suit (even for an hypoxia mishap).

1.34.3.6. Annotate any discrepancies in the physiological checklist. Include any repairs, adjustments made, or parts replaced, regardless of reason.

1.34.3.7. Determine if any equipment defects are a suspected, probable cause, or actual cause of the PI. Notify the WLSO or superintendent as soon as possible of any defects. Complete and send the AETC Form 500 to the WLSO or superintendent within 2 workdays.

1.34.4. Wing life support personnel will:

1.34.4.1. Maintain the PI checklist on file for 1 year (purge quarterly).

1.34.4.2. Accomplish a PQDR on any equipment suspected (no evidence, but possible failure) or a probable cause (some evidence, but could not be duplicated) of the PI.

1.34.4.3. Accomplish a PQDR on any piece of equipment that was a cause (evidence exists and [or] failure was duplicated) of the PI.

1.34.4.4. Notify AETC AOS/AOXL of any intended PQDR action; PQDR actions will not be delayed for notification. In this case, notify AETC AOS/AOXL as soon as possible.

1.34.5. The WLSO/LSQM will certify, by memorandum, personnel authorized to perform PIs. The wing and life support functions will maintain copies of certification memorandums. All personnel should receive training and be certified to conduct PI ALSE inspections.

1.34.6. The WLSO will immediately notify flying safety and the flight surgeon if any equipment fit problems or other discrepancies, which may be causal to the incident, are found.

1.34.6.1. The WLSO (or superintendent in the WLSO's absence) will review all sections and fill out applicable sections of AF Form 711GC, **Life Sciences Report of a Class C Physiological Mishap**, when it is received from flight medicine.

1.34.6.2. The WLSO will review the incident final report for accuracy and completeness and resolve any differences with flight safety. Both flight safety and the WLSO will ensure proper PQDR actions have been completed if a piece of ALSE is cited as a suspected cause, probable cause, or cause of the incident. After inspection, ALSE will be repaired or replaced as necessary and returned to service.

Chapter 2

TRAINING AIRCRAFT LIFE SUPPORT PROGRAM

NOTE: This chapter identifies specific equipment and training requirements for T-1, T-3, T-37, T-38, T-43, and AT-38 aircraft and aircrews. Aircrews will wear flying clothing identified in attachment 7 and the local supplemental guidance.

2.1. ALSE Procedures and Requirements:

2.1.1. **T-1.** Minimum aircraft-installed equipment is listed in table 2.1. The maintenance concept for LSE is prescribed under the contractor logistic support (CLS) contract. The contractor is responsible for replacing defective components and assemblies (except BA-1568/U batteries). Specific AETC life support responsibilities are acceptance inspection, periodic inspection, and maintenance of contractor-furnished equipment identified below:

Table 2.1. Minimum Aircraft-Installed Equipment.

L I N E	A	B	C	D
	Item	T-43		T-1
		Standard	Mini Mod	
1	Liferaft, F-2B	2 each	2 each	
2	358 series quick don w/goggles	4 each	4 each	
3	Smoke mask, firefighter	5 each	5 each	
4	EEBD/PBE	19 each	30 each	3 each
5	Antiexposure suit, CWU-16/P	23 each	34 each	
6	Adult/child LPU	23 each	34 each	4 (note 1)
7	LRU-6/P infant cot	note 1	note 1	
8	First-aid kit, general purpose	2 each	2 each	1 each
9	Liferaft, T-9			1 each (note 1)
10	359 series quick don w/goggles			3 each
11	Survival kit, AFSK-7			1 each
11	EPOS (note 2)		11 each	2 each

NOTES:

1. As required for overwater flights.
2. Units will ensure one EPOS is prepositioned for each installed passenger seat. POKs may be used until EPOS is available.

2.1.1.1. **359-B1A12 Mask and Antismoke Goggle (30-Day Inspection).** Inspect the oxygen mask according to Scot Aviation Manual (359 series) and inspect antismoke goggles according to TO 15X5-4-10-1, using one inspection record per mask.

2.1.1.2. **Survival Kit (180-Day Inspection).** Inspect survival kit components according to TO 14S1-3-51 or contractor-furnished guidance. Contents of the T-1A aircraft survival kit are determined by the contractor. Units may augment the survival kit with additional Air Force-approved components. **NOTE:**

The T-1A survival component case may be modified for easier access to components by aircrews and life support technicians. Instructions for this procedure are available from AETC AOS/AOXL.

2.1.1.3. **T-9 or LRU-14A/A Multiplace Liferaft.** **NOTE:** This raft is required when flying over water beyond gliding distance of land. On T-1A aircraft, the raft will be secured on the rear bulkhead by the available tiedowns, and the accessory kit will be placed to its left behind the communication bay. Minimum accessory container components are identified in table 2.2.

Table 2.2. T-9 Liferaft Accessory Container Components.

L I N E	A	B
	Item	Quantity
Outer Accessory		
1	Survival radio, PRC-90 Series (note 1)	1 each
2	Spare battery, BA-1568/U	1 each
3	Signal flare, MK-13 or MK-124 (note 1)	2 each
4	Signal kit, A/P25S-5A (note 1)	1 each
5	Compass, lensatic (note 1)	1 each
6	First-aid kit, individual or tropical (note 1)	3 each
7	Signal mirror, MK-3, type I or II (note 1)	1 each
8	Strobe light, SDU-5/E	1 each
9	Whistle	1 each
10	Sea dye marker	2 each
11	Raft repair kit w/pliers	1 each
12	MROD survivor 06 (note 2)	1 each
13	Water, flexible package	12 each
14	Blanket, survival	3 each
15	Fishing kit	1 each
16	Bailing bucket	1 each
17	Water bag, 5 quart	2 each
18	AFPAM 36-2246, <i>Aircrew Survival</i>	1 each
19	Bailing sponge	1 each
20	Sunburn ointment, (Pre-Sun 15 may be used)	3 each
21	Food packet, general purpose	3 each
22	Knife, pocket	1 each
23	Nylon cord, 100 pound (30 feet)	1 each
Inner Accessory		
24	Accessory container	1 each
25	Hand pump, type III	1 each
26	Adapter	1 each
27	Canopy	1 each
28	Canopy mast	1 each
29	Canopy rod	1 each

NOTES:

1. Mandatory item.
2. Two desalter kits may be used if MROD is not available.

2.1.1.4. **Life Preserver.** *NOTE:* This preserver is required when flying over water beyond gliding distance of land. Life preservers will be adult-child type, with one per crewmember and passenger. An approved emergency flotation device will be within reach of each seated occupant. The LPU-10/P may be used by aircrew members.

2.1.2. **T-3.** Aircrews will fly with parachutes and boots on all sorties. Commercial parachutes will be used to meet the T-3 unique weight (less than 20 pounds) and fit requirements (seat not adjustable). The LSO will validate individually fitted parachutes during initial training and prior to first flight. Use of custom-sized pads are authorized to meet individual fit requirements. Personnel who experience fitting problems will have their size rechecked according to AFI 48-123.

2.1.2.1. Parachutes will be fit certified before procurement to ensure they do not interfere with flight operations.

2.1.2.2. Parachutes will be certified to Federal Aviation Agency (FAA) Technical Standard Order (TSO) C23C Cat B, or like TSO C23D (certified to 150 knots with a fully equipped weight of 254 pounds), and have Capewell canopy releases and B-12 chest and leg snaps. The canopy will provide a descent rate of no more than 20 feet per second.

2.1.2.3. The FAA and approved manufacturer's commercial technical guidance will be used for the maintenance and use of the parachute.

2.1.2.4. Aircrews may (at the unit commander's option) wear or carry commercial leather jump hats or helmets. If the hat or helmet is carried (in the flight suit pocket) it will be readily available for quick donning prior to landing.

2.1.2.5. Squadron-approved parachute hats or baseball caps made of leather, cotton or wool (plastic mesh is prohibited) may be worn to provide head or solar protection for T-3 aircrews. Parachute hats or helmets may be modified to accommodate wear with the headset as long as protective padding is not removed.

2.1.2.5.1. Life support training guides will include proper wear to promote in-flight visibility and precautions for preventing FOD hazards.

2.1.2.5.2. Revisions will be reviewed and coordinated with units, 12 FTW, and 19 AF Safety and Stan/Eval. Final approval is AETC AOS/AOXL.

2.1.2.6. T-3 aircrews will receive initial and annual life support academic and hands-on training on fit and care of the parachute, air and ground egress, hanging harness, and post bailout procedures.

2.1.2.7. The lesson plans will be prepared by the 12 OSS and approved by AETC AOS/AOXL.

2.1.2.8. Use of aircraft survival kits is mandatory when flying over remote locations where recovery time without the equipment may endanger the aircrew member.

2.1.2.9. Squadrons may develop a minimum survival kit for individual daily use. This kit should be small enough to carry in the lower portion of the flight suit. Components in the kit will be standardized within

the unit and addressed in local operating instructions.

2.1.3. **T-43.** Minimum aircraft-installed equipment is listed in table 2.1. Life support is responsible for configuring and moving ALSE between aircraft.

2.1.3.1. **Minimum or Depot Survival Kit.** Issue a minimum survival kit if aircraft will not transit over water and is not configured with liferafts or individual survival kits. Issue a depot survival kit if the aircrew member will travel on a commercial airline to or from ferry destination.

2.1.3.1.1. **Aircraft Minimum Survival Kit (180-Day Inspection).** Annotate flare lot number and expiration dates on reverse of DD Form 1574 when inspecting survival kit. Minimum mandatory components are identified in table 2.3.

Table 2.3. Mandatory Aircraft Minimum Survival Kit Components.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series	1 each
2	Mirror, MK-3, type I or II	1 each
3	Strobe light	1 each
4	Whistle	1 each
5	First-aid kit	1 each
6	Compass, lensatic	1 each
7	AFPAM 36-2246	1 each
8	Signal kit, A/P25S-5A (note 1)	1 each
9	Knife, pocket (note 1)	1 each
10	Water bag, 5 quart	2 each
11	Match container w/matches (magnesium firestarter optional) (note 1)	2 each
12	Signal flare, MK-13/MK-124 (note 1)	3 each

NOTE: Items must be removed to carry kit on board commercial aircraft. Once removed, change kit nomenclature.

2.1.3.2. **358-Series Quick-Don Oxygen Mask (30-Day Inspection).** Disassembly and cleaning is required at least once every 90 days. Perform the 30-day inspection according to Scot Aviation Manual 35-11-90 and locally developed checklist guidance, and annotate inspection records (one form per mask). Place a label on all masks identifying the next inspection due date.

2.1.3.3. **Oxygen Mask.** Flight simulator oxygen masks will be maintained by contractors.

2.1.3.4. **Protective Breathing Equipment (PBE) (30-day Inspection).** Perform the inspection according to TO 15X5-4-10-1 and attach a DD Form 1574 to each container showing the date inspected and date due.

2.1.3.5. **F-2B Optional Accessories.** See table 2.4 for listing of optional accessories.

Table 2.4. Optional Accessories, F-2B Liferaft.

L I N E	A	B
	Item	Quantity
1	Battery, spare BA-1568/U	1 each
2	Strobe light, SDU-5/E	1 each
3	Cyalume lightstick	3 each
4	Water, flexible package	36 each
5	MROD survivor 35 (note)	1 each

NOTE: Six desalter kits may be used if MROD is not available.

2.1.4. T-37 and AT/T-38:

2.1.4.1. **Flight Equipment.** Aircrews will wear or use the following flight equipment in addition to items in attachments 6 and 7:

2.1.4.1.1. Connector, CRU-60/P.

2.1.4.1.2. MC-1 knife.

2.1.4.1.3. Survival equipment (PSK, vest, or seat kit) when flying over remote areas. A seat kit and life preserver units (LPU) are required for overwater missions when the aircraft is beyond gliding distance from land.

2.1.4.1.4. Parachute spacer kit. Perform the PSK 180-day inspection according to TOs or locally developed checklist.

2.1.4.1.4.1. Annotate flare lot numbers and expiration dates on the reverse side of the DD Form 1574. Forms may be overprinted according to AFI 37-160, volume 8, as supplemented.

2.1.4.1.4.2. Manufacture PSKs according to instructions and figures available from AETC AOS/AOXL. Components are prescribed in table 2.5. **NOTE:** If optional items are included, pack so as not to compromise kit integrity or shape.

2.1.4.1.4.3. PSKs may be issued using either AETC Form 290, **Survival Equipment Receipt**, or preprinted AF Form 1297, **Temporary Issue Receipt**.

2.1.4.1.4.4. Prior to issue, check kit safe-tie for security and DD Form 1574 for inspection currency. Check kit externally for general condition and material frays or evidence of water leakage.

2.1.4.1.5. Survival kit CNU-129/P (180-day inspection). Perform a 180-day survival kit inspection according to technical data and annotate inspection records. Components for the survival kit are prescribed in table 2.6. **NOTE:** The following components will be secured to the interior of the rucksack

with 100-pound test lanyards, or equivalent: survival radio, signal flare (MK-13/MK-124), mirror, strobe light, and signal distress kit (A/P25S-5A).

Table 2.5. Minimum PSK/Vest Components.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series	1 each
2	Signal flare, MK-13 or MK-124	1 each
3	Compass, lensatic	1 each
4	First-aid kit, individual or tropical	1 each
5	Water, flexible package	3 each
6	Whistle	1 each
7	Strobe light, SDU-5/E	1 each

Table 2.6. CNU-129/P Survival Kit Components.

L I N E	A	B
	Item	Quantity
1	Liferaft, one-man LRU-16/P (note)	1 each
2	Survival radio, PRC-90 series w/spare battery (note)	1 each
3	Signal flare, MK-13 or MK-124 (note)	2 each
4	Signal kit, A/P-25S-5A (note)	1 each
5	Compass, lensatic (note)	1 each
6	First-aid kit, individual or tropical (note)	1 each
7	Mirror, MK-3, type I or II (note)	1 each
8	Strobe light, SDU-5/E	1 each
9	Raft repair plugs	2 each
10	Whistle	1 each
11	Water bag, 3 pint	3 each
12	Water, flexible package	6 each
13	Tourniquet	1 each
14	Survival knife, 5 inch	1 each
15	AFPAM 36-2246	1 each
16	Sea marker dye	1 each
17	Aluminum blanket	1 each
18	Match container w/matches (magnesium firestarter optional)	1 each
19	Bailing sponge	3 each
20	Wool hood	1 each
21	Nylon inserts for NOMEX gloves	1 pair
22	Poncho	1 each
23	Sun block	1 each
24	Cyalume light stick	1 each

NOTE: Mandatory item.

2.1.4.1.6. SRU-21/P survival vest (180-day inspection). The survival vest may be used in place of the PSK during flights over remote areas. It will not be used in place of aircraft survival kits during overwater flights. Vest minimum components are prescribed in table 2.5. Fit and inspect the vest and components according to TO 14S1-3-51.

2.1.4.2. **Orientation Flight Equipment.** The following equipment will be worn for orientation flights: NOMEX flight suit, NOMEX gloves GS/FRP-2, all leather combat boots (tropical and desert boots are not authorized), undergarments, NOMEX or 100-percent cotton (synthetic material is prohibited), and additional items as required by local directives. **NOTE:** The OG/CC may waiver wear of NOMEX flight suits and authorize wear of BDUs for orientation flights on a case-by-case basis.

2.2. General Equipment Procedures and Requirements. The CRU-60/P connector used with T-37, T-38, and AT-38 aircraft may be located at either the end of the oxygen hose or on the parachute and inspected with the equipment it is connected to. Standardize the location of the connector within each wing.

2.2.1. If the connector is located on the parachute, use a method of preventing dust and insects from entering the CRU-60/P (such as plastic caps). When the connector is located on the parachute, life support instructors must emphasize proper connection to the mask and aircraft.

2.2.2. Aircrews must physically check connector attachment to the aircraft oxygen system to ensure proper connection and complete the pressure regulator indicator connections emergency (PRICE) check (pressure check) prior to flight.

Chapter 3

FIGHTER AIRCRAFT LIFE SUPPORT PROGRAM

NOTE: This chapter identifies equipment and training requirements for all F-15 and F-16 aircraft and aircrews. Aircrews will wear flying clothing identified in attachment 10 and the local supplemental guidance.

3.1. Personnel Qualification. Life support personnel who perform maintenance on aircraft-installed parachutes and survival kits will receive initial and annual recertification on parachute inspection, removal, and installation, and survival kit removal and installation. Document training on AF Form 1098, **Special Task Certification and Recurring Training**, or CAMS certification roster. Red-X certification will be accomplished according to TO 00-20-5 and AFI 21-112.

3.2. ACES II Parachute (30-Day Inspection):

3.2.1. Perform the parachute inspection according to TO 14D3-11-1 and applicable aircraft technical manual. Annotate inspection on applicable component and aircraft records. Perform parachute installation and removal according to the applicable aircraft technical manual.

3.2.2. Two qualified personnel (one Red-X certified and one qualified) are required for the inspection, installation, and removal of all aircraft integrated personnel parachutes and survival kits as depicted in appropriate technical data. This requirement can be satisfied by two aircrew life support personnel or one aircrew life support and one egress journeyman.

3.3. Connector Assemblies. The CRU-60/P and CRU-94/P connector must be stored in the cockpit of F-15 and F-16 aircraft.

3.4. ACES II Survival Kit (180-Day Inspection). Perform a 180-day survival kit inspection according to applicable technical data. A DD Form 1574 will be used to record munitions lot numbers.

3.4.1. The following components will be secured to the interior of the rucksack or auxiliary kit with 100-pound test lanyards, or equivalent: survival radio, signal flare (MK-13/MK-124), mirror, and signal distress kit (A/P25S-5A).

3.4.2. If a physician's exam flashlight (NSN 6230-00-125-5528) is installed in unit survival kits, it must be checked during each inspection. If the light functions properly, it may remain in service regardless of the date of manufacture provided there are no obvious defects such as swelling, cracking, or discoloration.

3.5. Aircraft Transfer. When transferring aircraft, ensure all accountable (CA/CRL) equipment documentation is coordinated through the equipment management flight for account adjustments.

3.6. Minimum Aircraft-Installed Equipment:

3.6.1. **ACES II Parachute.** Parachutes will be installed as prescribed in AFI 11-206, TO 14D1-1-1, and this instruction.

3.6.2. **ACES II Survival Kit.** Mandatory components for the ACES II survival kit are listed in table 3.1. Install URT-33C/M personnel locator beacons on all ACES II survival kits. Set beacons in the continuous mode.

Table 3.1. ACES II Survival Kit Components. (note 1)

L I N E	A	B
	Item	Quantity
1	Raft, one man, LRU-series	1 each
2	Radio, PRC-90 series	1 each
3	Spare battery, BA-1568/U	1 each
4	Signal flare, MK-13 or MK-124	2 each
5	Signal kit, A/P25S-5A	1 each
6	Compass, lensatic	1 each
7	First-aid kit (soft pack)	1 each
8	Signal mirror, MK-3	1 each
9	Whistle	1 each
10	Sea dye marker	1 each
11	Raft repair kit	2 each
12	Water, flexible package/canned	6 each/2 each
13	Tourniquet	1 each
14	Blanket, survival	1 each
15	AFPAM 36-2246	1 each
16	Knife, survival, 5-inch or leatherman	1 each
17	Water bag, 3 pint/5 quart (note 2)	1 each
18	Bailing sponge, NSN 7920-00-240-2559	2 each
19	Container w/matches (magnesium firestarter optional)	1 each
20	Sunburn ointment, (Pre-Sun 15 may be used) (note 3)	1 each
21	Flashlight, NSN 6230-00-125-5528 (note 3)	1 each

NOTES:

1. Mandatory, unless otherwise noted.
2. Water bag may be substituted with additional water packets or cans.
3. Optional item.

3.6.3. **Connector Assemblies.** All aircrews flying combat edge equipped aircraft (F-16 CRU-93A; F-15 CRU-98 oxygen regulators) must use the CRU-94/P connector.

3.6.4. **Emergency Oxygen Quick Disconnect.** This is an environmental control systems item.

3.7. Combat Edge (CE) Equipment. F-15 and F-16 pilots and students will wear CE equipment (if fitted and aircraft modified) for all air-to-air missions and any mission where planned or anticipated maneuvering equals or exceeds 6 Gs. Commanders may issue a more restrictive wear policy.

3.7.2. Units need to document the following data and keep on file for 1 year: CE training requirements (date trained and name of trainer) and CE fitting requirements (date fitted, name of technician, followup fit date, and name of technician).

3.7.3. The CE ensemble consists of the helmet, mask, anti-G suit, and anti-G vest. Due to the extremely critical nature of this equipment, these items will be checked for proper sizing, fit, and adjustment in conjunction with the 120-day anti-G suit refit.

3.8. Orientation Flights. Personnel will wear the following items of clothing on all orientation flights: NOMEX flight suit, NOMEX gloves GS/FRP-2, all leather combat boots (synthetic, tropical, and desert boots are not authorized), undergarments (NOMEX or 100-percent cotton [synthetic material is prohibited]), and additional items as required by local instructions.

3.9. Custom-Fitting Equipment. Custom fitting of life support equipment may be accomplished according to AFM 67-1, volume 4, part 1, *Air Force Equipment System Policy and Procedures*.

3.10. Antiexposure Suit (CWU-74/P, 21/P, and 21A/P). Affix the last name and local control number to each suit prior to issue. Use of indelible ink on the manufacturer's label is authorized.

3.11. Torso Harness. Each torso harness will have the following items installed: strobe light (SDU-5/E), AFP 64-15, and a minimum survival kit (SRU-16P). **NOTE:** SRU-16/P kit installation is a unit option, but will be standardized within the wing.

3.12. Combat Edge Vest and Anti-G Garment. Combat edge vest and anti-G garments are inspected and maintained by life support specialists. Record inspection and garment repairs on AFTO Form 335, **Anti-G and Constant Wear Anti-Exposure Suit Inspection Data**. TCTO modification and repair is accomplished by AFSC 2A7X4 personnel.

3.12.1. One combat edge vest and one anti-G garment constitute one complete anti-G ensemble. If aircrew members are issued two ensembles, both ensembles will be inspected and fit initially; however, only the primary use ensemble requires a 120-day refit.

3.12.2. With the exception of the MC-1 knife or riser cutter, no additional items are attached to the anti-G garment unless authorized by appropriate technical orders and this instruction.

3.13. Survival Vest. If survival vests are used, they will contain the components listed in table 3.2.

3.14. Core Automated Maintenance System (CAMS). Life support is responsible for ensuring the CAMS data base is updated with entries pertaining to the inspection, installation, and removal of aircraft-integrated life support equipment.

Table 3.2. Mandatory Survival Vest Components.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series	1 each
2	Signal kit, A/P25S-5A	1 each
3	Signal flare, MK-13 or MK-124	2 each
4	Mirror, MK-3 type I or II	1 each
5	Tourniquet	1 each
6	First-aid kit, tropical, individual (plastic bag)	1 each
7	Aluminum blanket	1 each
8	Whistle	1 each
9	Water, flexible package	4 each

Chapter 4

AIRLIFT SYSTEMS LIFE SUPPORT PROGRAM

NOTE: This chapter identifies equipment requirements for C-5, C-12, C-17, C-21, C-130, C-141, and KC-135 aircraft and aircrews. Aircrews will wear flying clothing identified in attachment 7 and the local supplemental guidance.

Section 4A--Weapon System Unique Responsibilities

4.1. Commanders. Commanders will ensure permanent party personnel and students are briefed that helmets and oxygen masks may be stored at a location convenient to the individual, but not locations that would expose equipment to elements such as extreme heat inside a vehicle. Aircrews are responsible for ensuring equipment is made available for inspections. Helmets and oxygen masks must be turned in to life support no less than 3 working days before the actual inspection due date.

4.2. Aircrew Life Support Personnel. Personnel will:

4.2.1. Ensure passenger demonstration equipment is available and placed on board when scheduled passenger movement is planned. This equipment will mirror all aboard individually issued passenger equipment (such as, LPUs, masks, etc.).

4.2.1.1. To keep this equipment segregated from operational assets, store demonstration equipment in a red, locally manufactured storage container.

4.2.1.2. Stencil both the storage container and each piece of LSE "FOR DEMONSTRATION ONLY" in 1/2-inch black (or contrasting color) lettering.

4.2.2. Maintain applicable flight simulator ALSE. Frequency and procurement will be agreed upon and specified in a unit supplement to this instruction.

4.2.3. (C-141 Life Support Personnel) Inspect oxygen masks used on comfort pallets.

Section 4B--Aircraft-Installed ALSE Procedures

4.3. Aircraft Configuration. As a minimum, units will maintain ALSE specified in aircraft configuration tables 4.1 through 4.7. Some aircraft configurations may require additional equipment; therefore, appropriate aircraft 11-series publications should be used for specific mission requirements. In the event liferaft inspections come due during off-station missions, it is permissible, in coordination with home station maintenance, to allow a one-time flight back to home station. MAJCOM options for F-2B liferaft accessories are listed in table 4.8.

4.4. Aircraft-Installed Aircrew Oxygen Masks:

4.4.1. Place quick-don masks at each crew station. The masks must remain with the aircraft while in depot to conduct functional check flights.

4.4.2. Etch the owning unit's name or locally assigned numbers on each suspension assembly. Control masks either by serial number or locally assigned number. **NOTE:** On C-21A and C-12C aircraft, masks will not be etched. Masks are contractor owned and are sent to other units. Additionally, masks cannot be inspected without aircraft connections requiring special test equipment or modification to the MQ-1 tester, thus they may be inspected on the aircraft. Masks on these aircraft will not be disassembled. Instead, refer discrepancies to the contractor for correction.

Table 4.1. C-5 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	Programmed Depart Maintenance (PDM) Input	Permanent Transfer
1	Mask, 358-series w/goggles	7	4	7
2	Mask, firefighter, smoke (note 1)	14	0	14
3	Mask, AWACS, MBU-12/P or 5/P	6	4	6
4	Protective breathing equipment (PBE)	8	4	8
5	Mask, PAX oxygen	101	0	101
6	Emergency PAX oxygen system (EPOS)	As required (note 2)	0	88
7	Protective clothing kit (PCK)	2	0	2
8	Goggle, flash blindness, MIL-G-635	2	0	2
9	Harness, restraint, PCU-17/P	2	2	2
10	Parachute, BA-18/22/29	note 3	0	0
11	Liferaft, 25-person	4	0	4
12	Life preserver, adult-child (A/C) or	100	4	100
	Life preserver, LPU-5/P (adult) with Life preserver, MD-1 (child) (notes 4 and 5)	80 (adult) 20 (child)		80 (adult) 20 (child)
13	Life preserver, LPU-6/P (infant)	7	0	7
14	Life preserver, LPU-2/P or -10/P (note 6)	As required	0	0
15	Life preserver, MB-1 (casualty)	2	0	2
16	Suit, antiexposure, CWU-16/P	As required	0	8

NOTES:

1. P/N 358-1506 series oxygen mask with goggles is the preferred aircrew smoke and fume protection. The 358-series mask and goggles may be replaced with the firefighter's smoke mask when the 358-series mask is not available.
2. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger. Preposition additional EPOSs for increased PAX loads (such as, 270 for airbus configuration). Chemical oxygen generators may be used as a substitute until EPOS are available.
3. One per crewmember plus one spare assigned at Altus AFB for airdrop missions.
4. The A/C is the preferred LPU for passengers. Units may use MD-1 and LPU-5/P LPU when A/C LPUs are not available. As a minimum, each aircraft will have one A/C LPU for each passenger.
5. Required only for overwater flights that exceed aircraft gliding distance.
6. LPU-2/P or -10/P LPUs are required to integrate with LSE and are designed for use by aircrew personnel. A/C LPUs are not compatible for use with parachutes and survival vests and must not be used as a substitute for these LPUs.

Table 4.2. C-12 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	PDM Input (note 1)	Permanent Transfer
1	359 series quick-don oxygen mask w/goggles or puritan bennet	2	2	2
2	Protective breathing equipment (PBE)	2	2	2
3	Mask, PAX oxygen	7 (note 2)	7	7
4	Liferaft, T-9/LRU-14 series	1 (note 3)	0	1
5	Life preserver, A/C	10	0	10
6	Minimum survival kit (MSK)	1	0	1
7	Suit, antiexposure, CWU-16/P	As required	0	2

NOTES:

1. MSK is mandatory when liferafts are not installed during PDM input from stateside locations. Aircraft flying over water to PDM will load one liferaft, LPUs, and antiexposure suits as required to support crewmembers.
2. One per passenger.
3. Required only for overwater flights that exceed aircraft gliding distance.

Table 4.3. C-21 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	PDM Input (note 1)	Permanent Transfer
1	Mask, aircrew (note 2), puritan bennet	2	2	2
2	Protective breathing equipment (PBE)	2	2	2
3	Mask, PAX oxygen	11	0	11
4	EPOS (note 3)	10	0	10
5	Liferaft, T-9/LRU-14 series	1 (note 4)	0	1
6	Life preserver, A/C	10	0	10
7	Minimum survival kit (MSK)	1	0	1
8	Suit, antiexposure, CWU-16/P	As required	0	2

NOTES:

1. MSK is mandatory when liferafts are not installed during PDM input from stateside locations. Aircraft flying over water to PDM will load one liferaft, LPUs, and antiexposure suits as required to support crewmembers.
2. Use only those masks specified in the statement of work.
3. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger.
4. Required only for overwater flights that exceed aircraft gliding distance.

Table 4.4. C-17 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	PDM Input	Permanent Transfer
1	Mask, 358-series w/goggles	15	3	15
2	Protective breathing equipment (PBE)	6	3	6
3	Mask, PAX oxygen (note 1)	74	0	74
4	EPOS	As required (note 2)	0	102
5	Aeromedical utility panel oxygen mask (note 3)	12	0	12
6	Protective clothing kit (PCK)	1	0	1
7	Goggle, flash blindness, MIL-G-635	4	0	4
8	Harness, restraint, PCU-17/P	2	2	2
9	Parachute, BA-18/22/29 (note 4)	note 4	3	4
10	Liferaft, 46-person	3	3	3
11	Life preserver, A/C	110	0	110
12	Life preserver, LPU-6/P (infant)	7	0	7
13	Life preserver, LPU-2/P or -10/P (notes 4 and 5)	6	3	4
14	Life preserver, MB-1 (casualty)	2	0	2
15	Suit, antiexposure, CWU-16/P	As required	0	4

NOTES:

1. Requirement is 72 each above the side wall seats and 2 each in the latrine.
2. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger. Preposition additional EPOS for increased PAX loads.
3. Each aeromedical utility panel contains four masks.
4. One per crewmember, primary and auxiliary, plus one spare.
5. LPU-2/P or -10/P LPUs are required to integrate with LSE and are designed for use by aircrew personnel. A/C LPUs are not compatible for use with parachutes/survival vests and must not be used as a substitute for these LPUs.

4.4.3. Oxygen masks installed on C-5 aircraft in the crew bunk area do not require microphones.

4.5. Aircraft Ferry Flights. Life support personnel will issue the following equipment to aircrews engaged in aircraft ferry flights: firefighters' smoke masks or 358-1506V quick-don masks if sufficient quantities are available, restraint harnesses (as required), and minimum or depot survival kit. Issue minimum survival kit if aircraft will not transit over water and is not configured with liferafts or individual survival kits. Issue a depot survival kit if the aircrew member will travel on a commercial airline to or from the ferry destination. **NOTE:** KC-135 aircraft require both quick-don and firefighters' smoke masks.

4.6. C-5 ALSE. See table 4.1 for the minimum required equipment. See table 4.9 for liferaft accessory container configuration.

4.6.1. Place two passenger demonstration masks in the troop compartment and one in the courier compartment when scheduled passenger movement is planned.

4.6.2. Units will have two protective clothing kits (PCK) installed. Identify one kit as "A" for the front of the aircraft, and the other kit as "B" for the aft of the aircraft.

Table 4.5. C-130 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	PDM Input (note 1)	Permanent Transfer (note 2)
1	Mask, 358-series w/goggles (note 3)	6	4	4
2	Mask, firefighter, smoke (note 4)	2	0	2
3	Protective breathing equipment (PBE)	8	4	6
4	EPOS	As required (note 5)	0	60
5	Protective clothing kit (PCK)	1	0	1
6	Goggle, flash blindness, MIL-G-635	4	0	4
7	Harness, restraint, PCU-17/P	4	1	3
8	Parachute, BA-18/22/29 (note 6)	note 6	4	6
9	Liferaft, 20-person (F-2B)	4	0	4
10	Life preserver, A/C or Life preserver, LPU-5/P (adult) with Life preserver, MD-1 (child) (note 8)	note 7	0	60
11	Life preserver, LPU-6/P (infant)	notes 7 and 9	0	4
12	Life preserver, LPU-2/P or -10/P (note 10)	20	4	6
13	Life preserver, MB-1 (casualty)	note 7	0	2
14	Kit, survival, MD-1/ML-4 (note 11)	8	0	6
15	Suit, antiexposure, CWU-16/P	note 7	0	6

NOTES:

1. Aircraft flying over water to PDM will load 1 raft, LPUs, and antiexposure suits to support crewmembers, as required.
2. For inter- and intra-command transfer of aircraft, position LSE on each aircraft according to permanent transfer configuration. Units gaining transferring aircraft, including PDM aircraft, will contact the losing organization ALS section and initiate transfer of required aircraft-installed LSE and inspection records. The gaining ALS organization will conduct an aircraft acceptance inspection and forward a copy of discrepancies, to include equipment shortages (if any), to the respective MAJCOM according to TO 00-20-1. Do not transfer aircraft with less than the required equipment. The losing organization will make up the shortages (if necessary) from on-hand assets to ensure transferring aircraft has required equipment.
3. P/N 358-1506 is the primary oxygen mask authorized. No more than two aircrew firefighter's smoke masks may be substituted for the Scott 358-1506 mask when the Scott 358-1506 masks are not available. Do not place smoke masks on the flight deck.
4. Mask may be replaced by P/N 358-1506 series oxygen mask with goggle installed.
5. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger. Preposition additional EPOS for increased PAX loads. POKs may be used as substitutes until EPOSs are available.
6. Parachutes will be carried on the aircraft at all times. A minimum of one parachute per crewmember plus a spare will be loaded on the aircraft during increased crew loads.
7. As required.

8. Units may replace the MD-1 LPU with the A/C LPU on a one-for-one basis. Units are authorized to mix LPU-5/Ps and A/C LPUs, when necessary. Preposition additional A/C LPUs to meet increased PAX loads. As a minimum, each aircraft will have one A/C LPU for each passenger. LPU-2/P or -10/P are not suitable substitutes for the A/C LPU.

9. One per infant.

10. LPU-2/P or -10/P LPUs are required to integrate with LSE and are designed for use by aircrew personnel. A/C LPUs are not compatible for use with parachutes and survival vests and must not be used as a substitute for these LPUs.

11. MD-1 survival kits may be used if ML-4 kits are not available. Mixed configurations are authorized.

Table 4.6. C-141 Aircraft LSE Configuration.

I T E M	A	B	C	D
	Minimum Required Equipment	Routine Mission	PDM Input	Permanent Transfer
1	Mask, 358-series w/goggles	8	4	8
2	Mask, firefighter, smoke (note 1)	2	0	2
3	AWACS, MBU-12/P or 5/P (notes 2 and 3)	5	0	5
4	Protective breathing equipment (PBE)	4	4	4
5	EPOS	As required (note 4)	0	150
6	Protective clothing kit (PCK)	1	0	1
7	Goggle, flash blindness, MIL-G-635	3	0	3
8	Harness, restraint, PCU-17/P	2	2	2
9	Parachute, BA-18/22/29	note 5	0	0
10	Liferaft, 20-person (F-2B)	6	0	6
11	Life preserver, A/C or	160	0	160
	Life preserver, LPU-5/P (adult) with	140 (adult)	0	140 (adult)
	Life preserver, MD-1 (child) (notes 6 and 7)	20 (child)		20 (child)
12	Life preserver, LPU-2/P or -10/P	As required (notes 7 and 8)	0	0
13	Life preserver, LPU-6/P (infant)	7	0	7
14	Life preserver, MB-1 (casualty)	2	0	2
15	Suit, antiexposure, CWU-16/P	As required	0	6

NOTES:

1. P/N 358-1506 series mask and goggle is the preferred aircrew protection. Firefighter's smoke or AWACS mask may be used until 358-series mask and goggles are available.

2. 358 series quick-don oxygen masks may be used in place of smoke mask, MBU-5/P, and MBU-12/P oxygen masks. Mixed configurations are not authorized.

3. Additional quick-don mask may be carried in lieu of MBU-5/P or 12/P aircrew oxygen mask.

4. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger. Preposition additional EPOS for increased PAX loads. PAX oxygen masks installed in containers may be used as a substitute until EPOS are available. Preposition 49 containers with 3 each PAX masks installed.

5. One per crewmember, primary and auxiliary, plus one spare assigned at Altus AFB for airdrop missions. Flying helmets are required for bailout.

6. The A/C LPU is the preferred LPU for passengers. MD-1 and LPU-5/P LPUs may be used when A/C

LPU are not available. As a minimum, each aircraft will have one A/C LPU for each passenger.

7. Required only for overwater flights that exceed aircraft gliding distance.

8. LPU-2/P or -10/P LPUs are required to integrate with LSE and are designed for use by aircrew personnel. A/C LPUs are not compatible for use with parachutes/survival vests and must not be used as a substitute for these LPUs.

Table 4.7. KC-135 Aircraft LSE Configuration.

I T E M	A	B	C	D	E
	Minimum Required Equipment	Routine Trainer	Channel Missions	PDM	Permanent Transfer (note 1)
1	Mask, 358-series w/goggles	7	4	4	4
2	Mask, firefighter, smoke (note 2)	2	2	0	2
3	Protective breathing equipment (PBE)	2	2	2	2
4	EPOS	As required (note 3)	60	note 3	60
5	Protective clothing kit (PCK)	1	1	0	1
6	Parachute, BA-18/22/29	(note 4)	(note 4)	6	6
7	Liferaft, 20-person (F-2B)	1	3	0	3
8	Life preserver, A/C or Life preserver, LPU-5/P (adult) with Life preserver, MD-1 (child) (note 5)	As required	60	0	60
9	Life preserver, LPU-6/P (infant)	5 (note 6)	5	0	5
10	Life preserver, LPU-2/P or -10/P (note 7)	7 (note 4)	6 (note 4)	6	6
11	Life preserver, MB-1 (casualty) (note 8)	2	2	0	2
12	Kit, survival, MD-1/ML-4	7 (note 4)	6 (note 4)	0	6
13	Survival vest, SRU-21/P	7 (note 4)	6	0	0
14	Suit, antiexposure, CWU-16/P	As required	6	0	6
15	Minimum Survival Kit (MSK)	0	0	1	0

NOTES:

1. For inter- and intra-command transfer of aircraft, position LSE on each aircraft according to permanent transfer configuration. Units gaining transferring aircraft, including programmed depot maintenance (PDM) aircraft, will contact the losing organization ALS section and initiate transfer of required aircraft-installed LSE and inspection records. The gaining ALS organization will conduct an aircraft acceptance inspection and forward a copy of discrepancies, to include any equipment shortages (if any), to the respective MAJCOM in accordance with TO 00-20-1. Do not transfer aircraft with less than the required equipment. The losing organization will make up the shortages (if necessary) from on-hand assets to ensure transferring aircraft has required equipment.

2. Mask may be replaced by P/N 358-1506 series O₂ mask with goggle installed.

3. EPOS is the preferred passenger smoke and fume protection. As a minimum, each aircraft will have one EPOS per passenger. Preposition additional EPOSs for increased PAX loads. POKs may be used as substitutes until EPOSs are available.

4. One per crewmember, plus one spare.

5. The A/C LPU is the preferred LPU for passengers. MD-1 and LPU-5/P LPUs may be used when A/C LPUs are not available. As a minimum, each aircraft will have one A/C LPU for each passenger.

6. One per infant.

7. LPU-2/P or -10/P LPUs are required to integrate with LSE and are designed for use by aircrew personnel. A/C LPUs are not compatible for use with parachutes or survival vests and must not be used as a substitute for these LPUs. Altus AFB is only required to preposition LPU-2/P or 10/P LPUs during routine trainer missions.

8. Install additional MB-1s as required by mission directives.

Table 4.8. MAJCOM Options F-2B Liferaft Accessories.

L I N E	A	B
	Item	Quantity
1	Battery, spare, BA-1568/U	1 each
2	Strobe light, SDU-5/E	1 each
3	Cyalume lightstick	3 each
4	Water, flexible package (notes 1 and 2)	32 each
5	MROD, Survivor 35 (notes 2 and 3)	1 each

NOTES:

1. One can of water may be substituted for three flexible water packs.
2. When the MROD and water are installed concurrently, there is no longer a requirement for solar distillation kits or desalter kits.
3. MROD is the command standard replacement for solar distillation kits. Replace solar distillation kits with water or desalter kits until MRODs are received. Unit option is four each MROD-06 (may be substituted for one each MROD-35 as necessary).

4.7. C-12 and C-21 ALSE. See tables 4.2 and 4.3 for the minimum required equipment. The maintenance concept for life support equipment is prescribed under the CLS contract. Specific AETC life support responsibilities are acceptance inspection, periodic inspection, and maintenance of the following equipment:

4.7.1. Survival Kit. Place survival components for these kits in a locally manufactured metal or fiberglass container measuring approximately 15 by 7 by 4 inches or in an equivalent container. Minimum mandatory components for the C-12 and C-21 aircraft survival kits are prescribed in table 4.10.

4.7.2. Liferaft, T-9AF. Minimum mandatory accessory container components are identified in table 4.11.

4.7.3. Puritan Bennet or -358 Series Mask. Develop local checklists to ensure masks are properly cleaned and visually inspected every 30 days. Masks may not be disassembled. Refer discrepancies to contractor for replacement.

4.7.4. Passenger Oxygen Masks. Inspect according to TO or locally developed checklists (C-12C). The inspection interval is every 300 hours or 180 days, whichever comes first.

NOTE: Life support will maintain additional ALSE to be loaded as required.

Table 4.9. C-5 Accessories and Survival Items, 25-Person Liferaft.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series w/spare battery (note 1)	1 each
2	Compass, lensatic/magnetic (note 1)	1 each
3	Mirror, MK-3, type I or II (note 1)	1 each
4	First-aid kit, individual or tropical (note 1)	1 each
5	Signal kit, A/P25S-5A (note 1)	1 each
6	Signal flare, MK-13 or MK-124 (note 1)	4 each
7	First-aid kit, individual (note 1)	4 each
8	Sea dye marker	4 each
9	Light, distress marker, SDU-5/E	1 each
10	Whistle, police, plastic	1 each
11	Repair kit, liferaft w/pliers	1 each
12	Knife, raft	2 each
13	Bailing bucket	1 each
14	Bailing sponge, size 8, type II	2 each
15	Fishing kit	1 each
16	Bag, water storage, size A	5 each
17	Desalter kit, type MK-2	6 each
18	Water, flexible package (note 2)	45 each
19	MROD, Survivor 6 (note 3)	4 each
20	Knife, pocket, US general purpose	2 each
21	Lipstick, type II, class 1, antichap	4 each
22	Sunburn ointment	6 each
23	Food packet, survival	7 each
24	AFPAM 36-2246	1 each
25	Nylon cord, type I, 6 feet (notes 4 and 5)	3 each
26	Feeder tube clamp	2 each
27	Hand pump, type III, w/adaptor (note 6)	1 each
28	Canopy rod (note 6)	10 each
29	Canopy mast (note 6)	2 each
30	Nylon cord, type I, 30 feet (note 6)	1 each
31	Blanket, aluminized (optional)	3 each
32	Light safety cyalume lightsticks (optional)	3 each
33	Meclizine hydrochloride (optional)	1 each
34	Survival straw, pocket purifier (optional)	25 each

NOTES:

1. Mandatory item.
2. One can of water may be substituted for three flexible water packs.
3. Replacement for desalter kits: unit option is four each MROD-6 (may be substituted for one each MROD-35 as necessary).
4. Two cords may be attached to feeder tube clamps.
5. Include laminated instructions stating purpose of cords.
6. Stored inside accessory compartment of the center bulk of liferaft.

Table 4.10. C-12 and C-21 Survival Kit Components.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series with spare battery (note)	1 each
2	Signal flare, MK-13 or MK-124 (note)	2 each
3	Signal kit, A/P25S-5A (note)	1 each
4	Compass, lensatic/magnetic (note)	1 each
5	Mirror, MK-3, type I or II (note)	1 each
6	First-aid-kit, individual or tropical (note)	1 each
7	Strobe light, SDU-5/E	1 each
8	Whistle	1 each
9	Water, flexible package	8 each
10	Bag, water storage, 5 quart	1 each
11	Blanket, survival	1 each
12	AFPAM 36-2246	1 each
13	Knife, survival, 5 inch	1 each
14	Tool, survival (gerber or leatherman)	1 each
15	Saw, pocket	1 each
16	Container w/matches (magnesium firestarter optional)	1 each
17	Cyalume light stick	3 each

NOTE: Mandatory item.

4.8. C-17 ALSE. See table 4.4 for the minimum required equipment. See table 4.12 for liferaft accessory container configuration.

4.8.1. Stow ALSE not being used in the survival equipment locker located forward and left of the crew entrance door. Stow aircrew restraint harnesses in the right-side drawer under the forward loadmaster station. Place passenger life preservers in the under-the-seat pouches per mission directives.

4.8.2. Aircraft-installed PBE and EEBD devices and -358 series quick-don oxygen masks are for aircrew use only. Install four PBEs and EEBDs in the cargo compartment and two in the auxiliary crew area (one on each side of cockpit doorway). Install only -358 series masks on the flight deck and in the cargo compartment.

4.9. C-130 ALSE. See table 4.5 for the minimum required equipment.

4.9.1. Flying helmets are required for bailout. Helmets will be carried on all missions.

4.9.2. Parachutes will be carried on all missions and will have emergency beacons, oxygen bottles, and CRU-60/P brackets installed.

4.9.3. The minimum length for the aircrew restraint harness (PCU-17/P) safety strap (HBU-6/P) on the C-130 aircraft is 13 feet 2 inches.

Table 4.11. C-12/C-21 T-9/LRU-14A/A Liferaft Accessory Container Components.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series with spare battery (note)	1 each
2	Signal flare, MK-13 or MK-124 (note)	2 each
3	Signal kit, A/P25S-5A (note)	1 each
4	Compass, lensatic/magnetic (note)	1 each
5	Mirror, MK-3, type I or II (note)	1 each
6	First-aid kit, individual or tropical (note)	3 each
7	Strobe light, SDU-5/E	1 each
8	Whistle	1 each
9	Water, flexible package	12 each
10	MROD, Survivor 06	1 each
11	Desalter kit (only if MROD is not available)	2 each
12	Sea dye marker	2 each
13	Raft repair kit w/pliers	1 each
14	Bailing bucket	1 each
15	Bailing sponge	2 each
16	Blanket, survival	3 each
17	Water bag, 5 quart	2 each
18	Sunburn ointment (Pre-Sun 15 may be used)	3 each
19	AFPAM 36-2246	1 each
20	Fishing kit	1 each
21	Nylon cord, 100 pound	30 feet
22	Knife, pocket	1 each
23	Lightstick, cyalume	3 each
24	Food packet, general purpose	3 each
25	Magnesium firestarter	1 each

NOTE: Mandatory item.

4.9.4. ML-4 survival kits will be stored attached to the parachute and will contain the components listed in table 4.14.

4.9.5. If survival vests or PSKs are used, they will be configured according to table 4.13.

4.9.6. When equipment racks are installed, all LSE except parachutes and attached ML-4 survival kits will be stored on the LSE racks.

4.10. C-141 ALSE. See table 4.6 for minimum required equipment.

4.10.1. **Helmet, HGU-55/P.** C-141 loadmasters and engineers do not require oxygen masks unless performing a high altitude/low opening (HALO) mission. All helmets will have bayonet receivers and a boom microphone installed according to applicable technical orders.

Table 4.12. C-17 Accessories and Survival Items, 46-Person Liferaft.

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series w/ spare battery (note 1)	1 each
2	Compass, lensatic/magnetic (note 1)	1 each
3	Mirror, MK-3, type I or II (note 1)	1 each
4	First-aid kit, individual or tropical (note 1)	8 each
5	Signal kit, A/P25S-5A (note 1)	1 each
6	Signal flare, MK-13 or MK-124 (note 1)	4 each
7	Sharpening stone	1 each
8	Sea dye marker	4 each
9	Light, distress marker, SDU-5/E	1 each
10	Whistle, police, plastic	1 each
11	Repair kit, Liferaft w/pliers	2 each
12	Knife, raft	4 each
13	Bailing bucket	2 each
14	Bailing sponge, size 8, type II	4 each
15	Fishing kit	2 each
16	Bag, water storage, size B	10 each
17	Desalter kit, type MK-2	12 each
18	Water, flexible package (note 2)	75 each
19	MROD, Survivor 6 (note 3)	4 each
20	Knife, pocket, US general purpose	1 each
21	Lipstick, type II, class 1, antichap	8 each
22	Sunburn ointment	4 each
23	Food packet, survival	14 each
24	AFPAM 36-2246	1 each
25	Nylon cord, type I, 30 feet	2 each
26	Hand pump	1 each
27	Canopy/paulin	1 each
28	Canopy rod	6 each
29	Canopy mast	1 each
30	Blanket, aluminized (optional)	6 each
31	Plastic sheet (12 feet by 12 inches)	2 each
32	Plastic bag (4 by 4 inches)	2 each

NOTES:

1. Mandatory item.
2. One can of water may be substituted for three flexible water packs.
3. Replacement for desalter kits: unit option is four each MROD-6 (may be substituted for one each MROD-35 as necessary).

4.10.2. Tapered Passenger Oxygen Masks. Configure each C-141 with a minimum of 147 tapered passenger oxygen masks (49 containers) or larger quantities as mission dictates. Exact positioning of these masks for each aircraft configuration will be according to aircraft configuration directives.

Table 4.13. Mandatory Survival Vest/PSK Components (C-130 Aircraft).

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series/PRC-112	1 each
2	Signal kit, A/P25S-5A	1 each
3	Signal flare, MK-13 or MK-124	2 each
4	Mirror, MK-3, type I or II	1 each
5	First-aid kit, tropical or individual	1 each
6	Compass, lensatic	1 each
7	Water, flexible package	3 each

Table 4.14. ML-4 Survival Kit Components (C-130 Aircraft).

L I N E	A	B
	Item	Quantity
1	Liferaft, LRU-16/P (note)	1 each
2	Repair kit, liferaft, w/pliers (note)	2 each
3	Radio, PRC-90 series, with spare battery (note)	1 each
4	Signal, MK-13 MOD "O" or MK-124 (note)	2 each
5	Signal kit, A/P25S-5A (note)	1 each
6	Compass, lensatic/magnetic (note)	1 each
7	First-aid kit, individual (note)	1 each
8	Whistle	1 each
9	Mirror, signal, MK-3, Type I or II (note)	1 each
10	Match container w/matches or magnesium firestarter	1 each
11	Water, flexible package (note)	3 each
12	Bag, water storage, 3-pint	1 each
13	MROD, survivor-06	1 each
14	Sea marker dye	1 each
15	AFPAM 36-2246	1 each
16	Bailing sponge, olive drab	1 each
17	Knife, 5 inch w/sheath, pocket knife or multi-tool	1 each
18	Hood, winter, wool	1 each
19	Socks, wool (size 12)	1 pair
20	Sun hat, camouflage (size large)	1 each

NOTE: Mandatory item.

4.10.2.1. When the tapered passenger oxygen mask is installed, configure each C-141 with one container packed with two masks without the mask or container attaching plate. Use the container and masks as a demonstration unit for passenger briefings. Paint the metal portion of the mask container red and sew a red streamer approximately 18 inches long to the container opening pull tab. Stencil "DEMO ONLY" on the streamer. Remove connectors from the end of the hose on all demonstration masks to preclude inadvertent use.

Table 4.15. Aircraft Minimum Survival Kit.

L I N E	A	B
	Item	Quantity
1	Radio, PRC-90 series with spare battery	1 each
2	Signal flare, MK-13 or MK-124 (note)	2 each
3	Signal kit, A/P25S-5A (note)	1 each
4	Compass, lensatic	1 each
5	Mirror, MK-3, type I or II	1 each
6	First-aid kit, individual or tropical	1 each
7	Strobe light	1 each
8	Whistle	1 each
9	AFPAM 36-2246	1 each
10	Water bag, 5 quart	2 each
11	Knife, pocket (note)	1 each
12	Container w/matches (note) or magnesium firestarter	2 each

NOTE: Items must be removed to carry kit on board commercial aircraft. Once removed, change kit nomenclature to "Depot Survival Kit."

4.10.2.2. Tapered passenger oxygen masks will be inspected in conjunction with the aircraft isochronal inspection. On the labeling tape, indicate date inspected, name of inspector, and write "NEXT ISO" for the due date. Also indicate "NEXT ISO" for the due date on the AFTO Form 46.

4.10.3. **Parachute, BA-18/22/29.** Maintain an appropriate number of personnel parachutes to support training requirements for airdrop missions. AETC AOS/AOXL will approve this number and it will be specified in the unit's supplement to this instruction.

4.10.4. **Aircrew Restraint Harness, PCU-17/P, and Safety Strap.** Initial-issue HBU-6/P safety straps are too short for use on C-141 airdrop missions. To correct this deficiency, all safety straps required for C-141 aircraft will be reworked to a longer configuration of 18 feet 6 inches. The pouch for longer configuration straps should be enlarged to accommodate the extra strap length.

4.10.5. **Aircraft Minimum Survival Kit.** Annotate the inspection on AFTO Form 338 and DD Form 1574. Annotate flare lot number and expiration dates on the reverse of DD Form 1574. Minimum mandatory components are identified in table 4.15.

4.11. KC-135 ALSE. See table 4.7 for the minimum required equipment.

4.11.1. Aircraft ALSE will have a minimum of 60 days remaining on its current repack and inspection when departing home station for channel missions, etc.

4.11.2. Attach survival kits to parachute buckles and hang in the rear of the aircraft. Aircraft commanders may direct the repositioning of ALSE based on mission need; however, it must be readily accessible. Crewmembers will return parachutes and kits to their primary position after mission completion. Additional equipment may be placed on board to accommodate additional aircrew members. Coordinate

with life support 24 hours prior if additional equipment is required.

4.11.3. SRU-21/P survival vests and ML-4 survival kits will contain the components listed in tables 4.16 and 4.17.

4.11.4. Place POKs at the passenger position by securing the upper-seat support tube using a tie-down strap (NSN 5975-00-984-6582 or equivalent) and a quick-release snap (such as a FASTTEX buckle). Position the POK bags to the forward side of the passenger and between the seat back webbing to ensure rapid access. Three additional POKs will be placed on board; one each in the latrine, cockpit, and galley.

Table 4.16. SRU-21/P Survival Vest Components (KC-135 Aircraft).

L I N E	A	B
	Item	Quantity
1	Survival radio, PRC-90 series w/spare battery (note)	1 each
2	Signal flare, MK-13 or MK-124 (note)	2 each
3	Signal kit, personal distress, A/P25S-5A (note)	1 each
4	Compass, lensatic/magnetic (note)	1 each
5	Mirror, MK-3, type I or II (note)	1 each
6	First-aid kit (note)	1 each
7	Strobe light, SDU-5/E w/IR filter & flash guard (note)	1 each
8	Water, flexible package (note)	3 each
9	Whistle	1 each
10	Knife, pocket	1 each
11	Container w/matches or magnesium firestarter	1 each
12	Sunburn ointment (Pre-Sun 15 may be used)	1 each
13	Repellent, insect	1 each

NOTE: Mandatory item.

Table 4.17. ML-4 Survival Kit Components (KC-135 Aircraft).

L I N E	A	B
	Item	Quantity
1	Liferaft, LRU-16/P (note)	1 each
2	Repair kit, Liferaft, w/pliers (note)	2 each
3	Water, flexible package (note)	3 each
4	Blanket, combat casualty (NSN 7210-00-935-6665)	1 each
5	Mittens, set, type N4B	1 pair
6	Bag, water storage, 3-pint	1 each
7	Hood, winter, wool (note)	1 each
8	Bailing sponge, olive drab	1 each
9	AFPAM 36-2246	1 each
10	Socks, wool, size 12 (note)	1 pair
11	Sea marker dye	1 each
12	MROD, Survivor 6 (note)	1 each

NOTE: Mandatory item.

Chapter 5

SPECIAL OPERATIONS/RESCUE AIRCRAFT LIFE SUPPORT PROGRAM

NOTE: This chapter identifies equipment requirements for MC-130, H-1, H-53, and H-60 aircraft and aircrews.

5.1. Minimum Aircraft-installed Equipment. Units will maintain aircraft-installed equipment indicated in table 5.1 for each aircraft assigned. Units will not allow aircraft to depart home station without the minimum life support equipment indicated in this table.

Table 5.1. Minimum Aircraft-installed Equipment.

L I N E	A	B	C	D	E	F
	Item	MC-130H	MC-130P	UH-1	H-53	HH-60
1	Parachute, BA-18/22/29	note 1	note 1			
2	Harness, restraint PCU-17/P	7	5			
3	Troop/turret gunner safety belt			note 2	note 2	note 2
4	Raft, F-2B	4	2			
5	Raft, LRU-1/P, T-9, or LRU-14A/A			1 (note 3)	2 (note 3)	1 (note 3)
6	Life preserver, LPU-2/P or 10/P	notes 1, 3, and 4	notes 1, 3, and 4	notes 1, 3, and 4	notes 1, 3, and 4	notes 1, 3, and 4
7	358-series quick-don or MBU-10/P oxygen mask w/goggles	6	5			
8	Smoke mask, firefighter	4	3			
9	EEBD/PBE	4	5			
10	HEED			notes 1 and 3	notes 1 and 3	notes 1 and 3
11	Vest, SRU-21/P	3	2	note 1	note 1	note 1
12	Survival kit, ML-4	note 2	note 2			
13	Sea rescue kit, MA-1 or MA-2		note 2			
14	Antiexposure suit, CWU-16/P	notes 1 and 2	notes 1 and 2			
15	Antiexposure suit, MAC-10			notes 1 and 2	notes 1 and 2	notes 1 and 2
16	Protective clothing kit	note 2	note 2			

NOTES:

1. One per aircrew member plus one spare.
2. As required.
3. Required over water when not within autorotation/gliding distance of land.
4. One per passenger.

5.2. Equipment Maintenance Requirements:

5.2.1. Antiexposure Suit, Mustang Aviation Coverall (MAC10). Life support will inspect the MAC10

coverall according to the maintenance manual provided from Mustang Mfg. Inc., and locally developed checklists. Inspection cycle shall not exceed 180 days.

5.2.2. Troop/Turret Gunner Safety Belt P/N MS1670-21. Life support is responsible for inspection, maintenance, and testing of troop/turret gunner safety belts.

5.2.3. Helicopter Emergency Egress Device (HEED) SRU-36/P. Perform 30- to 90-day inspection according to TO 14S5-27-1. Log 30- to 90-day inspection on an AFTO Form 334 or locally developed computer-generated form. HEED will be attached to the survival vest according to procedures at attachment 10 and installed as required.

5.2.4. Flotation Equipment. Optional LRU-1/P and F-2B liferaft accessories are listed in table 5.2.

5.2.4.1. MA-1 sea rescue kits will be assembled and packed according to TO 14S-1-102. In addition to components listed in TO, units may supplement components in accessory containers. The WLSQM will ensure additions are included in the local supplement to this instruction and incorporated into the training program.

5.2.4.2. Helicopters may conduct overwater training without a liferaft, provided each crewmember and passenger is wearing a life preserver and safety is provided by motor-powered boat, or hoist-equipped helicopter.

5.2.5. Survival Vest. Mandatory components are listed in table 5.3.

Table 5.2. LRU-1/P and F-2B Liferaft Optional Items.

L I N E	A	B
	Item	Quantity
1	Battery, spare BA-1568/U	1 each
2	Strobe light, SDU-5/E	1 each
3	Cyalume lightstick	3 each
4	Water, flexible package (notes 1 and 2)	36 each
5	MROD, Survivor 35 (notes 2 and 3)	1 each

NOTES:

1. One can of water may be substituted for three flexible water packs.
2. When the MROD and water are installed concurrently, there is no longer a requirement for solar distillation kits or desalter kits.
3. MROD is the command standard replacement for solar distillation kits. Replace solar distillation kits with water or desalter kits until MRODs are received. Unit option is four each MROD-06 (may be substituted for one each MROD-35 as necessary).

Table 5.3. Survival Vest Components (Mandatory).

L I N E	A	B
	Item	Quantity
1	Survival Radio, PRC-90 Series/PRC-112	1 each
2	Signal Kit, A/P25S-5A	1 each
3	Signal Flare, MK-13 or MK-124	2 each
4	Mirror, MK-3 Type I or II	1 each
5	First-Aid Kit, Tropical or Individual	1 each
6	Compass, Lensatic	1 each

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFIND 2, *Numerical Index of Standard and Recurring Air Force Publications*
AFIND 17, *Index of Air Force Occupational Safety and Health (AFOSH) Standards, Department of Labor Occupational Safety and Health (OSHA) Standards, and National Institute for Occupational Safety and Health (NIOSH) Publications*
AFPD 11-3, *Life Support*
AFI 11-206, *General Flight Rules*
AFI 11-301, *Life Support Program*
AFI 11-403, *Aerospace Physiological Training Program*
AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*
AFI 21-112, *Aircraft Egress and Escape Systems*
AFI 21-208, *Munitions Forecast, Allocation, and Buy Budget Processes*
AFPD 21-3, *Technical Orders*
AFMAN 23-110, volume 2, *USAF Supply Manual*
AFMAN 23-110, volume 2, part 13, *Standard Base Supply Customer's Procedures*
AFMAN 23-110, volume 5, *Air Force Medical Material Management System - General*
AFJMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*
AFI 25-201, *Support Agreement Procedures*
AFI 31-207, *Arming and Use of Force by Air Force Personnel*
AFI 31-209, *The Air Force Resource Protection Program*
AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*
AFI 32-4001, *Disaster Preparedness Planning and Operations*
AFI 34-217, *Air Force Aero Club Program*
AFI 35-102, *Crisis Planning, Management and Response*
AFI 36-2101, *Classifying Military Personnel (Officers and Airmen)*
AFMAN 36-2105, *Officer Classification*
AFI 36-2201, *Developing, Managing, and Conducting Training*
AFI 36-2209, *Survival and Code of Conduct Training*
AFI 36-2217, *Munitions Requirements for Aircrew Training*
AFCAT 36-2223, *USAF Formal Schools*
AFMAN 36-2236, *Guidebook for Air Force Instructors*
AFPAM 36-2241, Volume 1, *Promotion Fitness Examination Study Guide*
AFPAM 36-2246, *Aircrew Survival*
AFI 36-2403, *The Enlisted Evaluation System (EES)*
AFI 36-2803, *The Air Force Awards and Decorations Program*
AFI 36-2807, *Headquarters United States Air Force Deputy Chief of Staff Plans and Operations Annual Awards Program*
AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*
AFI 36-3103, *Identification (ID) Tags*
AFI 37-138, *Records Disposition--Procedures and Responsibilities*
AFI 37-160, volume 7, *The Air Force Publications and Forms Management Program--Publication Libraries and Sets*
AFI 37-160, volume 8, *The Air Force Publications and Forms Management Program--Developing and Processing Forms*

AFI 38-401, *The Air Force Innovative Development through Awareness (IDEA) Program*
 AFI 48-123, *Medical Examination and Standards*
 AFR 64-4, volume 1, *Survival Training*
 AFP 64-15, *Survival and Emergency Uses of the Parachute*
 AFI 65-601, volume 1, *Budget Guidance and Procedures*
 AFI 65-601, volume 2, *Budget Management for Operations*
 AFM 67-1, volume 4, part 1, *Air Force Equipment System Policy and Procedures*
 AFI 90-201, *Inspector General Activities*
 AFMAN 91-201, *Explosive Safety Standards*
 AFI 91-202, *The US Air Force Mishap Prevention Program*
 AFI 91-204, *Safety Investigations and Reports*
 AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Program*
 AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Standards*
 MCI 10-202, volume 2, *Operational Support Airlift (OSA) and Aeromedical Evacuation (AE) Aircrew Training Program Policies, Organizations, and Administration (PA)*
 MCI 10-202, volume 4, *C-141 Aircrew Training (PA)*
 MCI 10-202, volume 5, *C-5 Aircrew Training*
 MCI 10-202, volume 6, *C/KC-135 Aircrew Training Program Policies, Organizations, and Administration (PA)*
 MCI 10-202, volume 7, *C-17 Aircrew Training (PA)*
 MCR 51-1, volume 5, *C-5 Aircrew Training*
 MCR 51-50, *Aircrew Training-General*
 AETCI 11-401, *Aircrew Training Device Scheduling and Utilization Reporting*
 AETCI 21-101, volume 2, *Maintenance Management of Aerospace Management*
 AETCI 36-2803, *Operations Recognition Program*
 AL-SR-1992-0002, *Night Vision Manual for the Flight Surgeon*
 AS 016, *Special Purpose Clothing and Personal Equipment*
 AS 450, *Personal/Life Support Equipment*
 AFMS 31C1, *Air Force Life Support Manpower Standards*
 CFETP 1T1X1, *Career Field Education and Training Plan*
 TO 0-1-01, *Numerical Index*
 TO 0-1-02, *General Technical Orders Index*
 TO 0-1-11, *Ammunition, Flares, Explosives and Associated Equipment Index*
 TO 0-1-12, *Airborne Electronic Equipment Index*
 TO 0-1-13, *Aircraft Furnishings Index*
 TO 0-1-14, *Deceleration Devices, Personal and Survival Equipment Index*
 TO 0-1-15, *Oxygen and Related Equipment Index*
 TO 0-1-31-4, *Ground Radio Electronic Equipment Index*
 TO 0-1-33-1, *General Purpose Test and Associated Equipment Index*
 TO 0-1-33-2, *Special Purpose Test Equipment Index*
 TO 0-1-33-5, *Training Devices and Associated Equipment Index*
 TO 0-1-43, *Test Sets*
 TO 00-5-1, *Air Force Technical Order System*
 TO 00-5-2, *Distribution and Storage of Air Force Technical Order System Publications*
 TO 00-5-2-102, *Supplemental Manual-Automated Technical Order Management System*

(ATOMS)/Software

TO 00-5-2-2, *Supplemental Manual-Automated Technical Order Management System (ATOMS)*

TO 00-5-15, *Air Force TCTO System*

TO 00-20-1, *Preventative Maintenance Program*

TO 00-20-5, *Aircraft, Drone, Aircrew Training Devices, Engines, and Air-Launched Missile*

Inspections, Flight Reports, and Supporting Maintenance Documents

TO 00-20-9, *Reporting Time Change Items*

TO 00-20-9-1, *Forecasting Replacement Requirements for Cartridge/Propellant Actuated Devices*

TO 00-25-06-2-1, *412A Survival/Life Support System Equipment/Work Unit Code Manual*

TO 00-25-241, *Parachute Logs and Records*

TO 00-35A-39, *Instruction, Use and Maintenance of Medical Kits*

TO 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*

TO 00-110-series, *Lensatic Compass*

TO 11A-series, *Munitions*

TO 11P-series, *Cartridges for Escape Systems*

TO 12S-series, *Night Vision Devices*

TO 13A-series, *Aircraft Furnishings*

TO 14D-series, *Parachutes*

TO 14P-series, *Personal Equipment Clothing (flying coveralls, helmets)*

TO 14S-series, *Survival Equipment, General Life Preservers, Liferafts, Strobe Light (SDU-5/E)*

TO 15X series, *Oxygen Cylinders, Masks, Regulators*

TO 31R-series, *Survival Radios and Beacons*

TO 33-series, *General Purpose Test Equipment*

TO 34-series, *Shop Machinery and Support Equipment*

TO 40W-series, *Manual Reverse Osmosis Demineralizers (MRODS)*

TO 43D-7-series, *TS-24B Test Set*

TO 43D-8-series, *Trainers*

Abbreviations and Acronyms

A/C	adult/child
ACDE	aircrew chemical defense ensemble
ACDT	aircrew chemical defense training
AETC	Air Education and Training Command
AFMAN	Air Force Manual
AFORMS	Air Force Operations Resource Management System
AIG	address indicator group
ALC	Air Logistics Center
ALS	aircrew life support
ALSS	aircrew life support system
AFSC	air force specialty code
ALSE	aircrew life support equipment
ALSI	aircrew life support instructor
ALSMS	aircrew life support management system
ALSS	aircrew life support system
ALSSM	aircrew life support system manager

ALST	aircrew life support training
AMU	aircraft maintenance unit
ANGRC	Air National Guard Readiness Center
AOS	air operations squadron
APU	aerospace physiology units
AS	allowance standard
ATOMS	Automated Technical Order Management System
BER	budget execution review
CA/CRL	custodian authorization/custody receipt listing
CAMS	Core Automated Maintenance System
CBO	chemical biological oxygen
CCA	contamination control area
CDC	career development course
CE	combat edge
CFETP	Career Field Education and Training Plan
CLS	contractor logistic support
COTS	commercial-off-the-shelf
CSAR	combat search-and-rescue
CST	combat survival training
CTK	composite tool kit
DLA	defense logistics agency
EEBD	emergency escape breathing device
EPOS	Emergency Passenger Oxygen System
EPT	egress procedural trainer
ESS	electronic staff summary
FAA	Federal Aviation Agency
FOD	foreign object damage
FTU	fighter training unit
GLOC	gravity-induced loss of consciousness
HALO	high altitude/low opening
HEED	helicopter emergency egress device
HCV	high contrast visor
HHT	hanging harness training
HSC	Human Systems Center
IG	Inspector General
IPi	in-process inspection
IQT	initial qualification training
ISO	isochronal
JQS	job qualification standard
LPV	laser protection visor
LPU	life preserver unit
LS	life support
LSE	life support equipment
LSI	life support instructor
LSLO	life support liaison officer
LSO	life support officer
LSQM	life support quality manager

LST	life support technician
LSTC	life support task certifier
LSTT	life support technician trainer
MAJCOM	major command
MPF	military personnel flight
MPH	military public health
MR	mission ready
MROD	manual reverse osmosis desalinator
MSK	minimum survival kit
MTI	mission termination inspection
MTL	master task listing
NA	not applicable
NSN	national stock number
NVD	night vision device
NVG	night vision goggle
OG	operations group
OG/CC	operations group commander
OI	operating instruction
OPR	office of primary responsibility
OSS	operational support squadron
OT&E	operational testing and evaluation
PAI	primary aircraft (assigned) inventory
PAX	passanger
PBE	protective breathing equipment
PCK	protective clothing kit
PCS	Permanent Change of Station
PDM	programmed depot maintenance
PI	physiological incident
PLD	personal lowering device
PLF	Parachute Landing Fall
POK	passenger oxygen kit
POM	passenger oxygen mask
PQDR	product quality deficiency report
PRICE	pressure regulator indicator connections emergency
PSFPD	Passenger Smoke and Fume Protection Devices
PSK	parachute spacer kit
QAI	quality assurance inspector
QAP	Quality Assurance Program
QCI	quality control inspection
QMR	quarterly management report
ROD	report of discrepancy
SAR	search and rescue
SAREX	search and rescue exercise
SAV	staff assistance visit
SLSO	squadron life support officer
SNCO	senior noncommissioned officer
SNCOIC	squadron noncommissioned officer in charge

TA	Table of Allowance
TCT	technician continuation training
TCTO	time compliance technical order
TMDE	test, measurement and diagnostic equipment
TO	technical order
TPR	trained personnel requirement
TQR	training quality report
TR	trend resolution
TSO	technical standard order
TTE	technician task evaluation
UET	underwater egress training
UFT	undergraduate flying training
WLSO	wing life support officer
WLST	wing life support trainer
WST	water survival training
WSTC	weapon system team chief
ZOP	zero overpricing program

AIRCREW TRAINING FREQUENCY

Table A2.1. Aircrew Training Frequency. (notes 1 and 2)

I T E M	A	B	C	D
	Item Subject	Ejection Seat Aircrew	Nonejection Seat Aircrew	Helicopter Aircrew
1	LS01—Local Area Survival (note 3)	Initial	Initial	Initial
2	LS02—CST, High Threat (notes 3 and 4)	Triennial	Triennial	Triennial
3	LS03—WST	Triennial	Triennial	Triennial
4	LS04—ACDT (note 4)	Annual	Biennial	Annual
5	LS05—Egress w/ACDE (notes 4 and 5)	Annual	Triennial	Biennial
6	LS06—LSE Training	Annual	Annual	Annual
7	LS07—Egress Training, Ejection (notes 3, 6, 7, 8, 9, and 10)	180 days	NA	NA
8	LS08—Egress Training, Nonejection (notes 3 and 8)	NA	Annual	Annual
9	LS09—Hanging Harness Training (HHT), Ejection (notes 3, 6, 7, 9, and 10)	180 Days	NA	NA
10	LS10—HHT, Nonejection (notes 3 and 9)	NA	Triennial	Biennial
11	LS11—CST, Low Threat (note 5)	Triennial	Triennial	Triennial
12	LS12—HHT w/ACDE (notes 5, 9, and 11)	Annual	Annual	Annual
13	LS13—HEED Training (note 3)	NA	NA	Annual

NOTES:

1. Definitions: annual is 12 months; biennial is 24 months; triennial is 36 months; and initial is one-time requirement before first flight at home station. Due dates may be calculated to the end of the month due training.
2. Continuation training sessions may be combined with other blocks of training. Aircrew life support training guidance in AFIs and MCIs takes precedence when published (ensures aircrews in the same weapon systems get similar training).
3. Grounding item.
4. AETC aircrews will receive CST and ACDT as required to meet unit mobility or individual UTC taskings or syllabus requirements.
5. Student aircrews assigned to aircraft without ejection seats will receive egress training once every 180 days.
6. Student aircrew assigned to field training units (FTU) for aircraft with ACES II ejection seats who are not rated in weapons system (B-course) will receive egress and HHT every 60 days.
7. Flight surgeons assigned to units with ACES II ejection seats will receive egress and HHT once every 60 days. Unit commanders may waive, by memorandum, this requirement up to 180 days on the recommendation of the unit life support officer for those flight surgeons who demonstrate proficiency in unit-equipped aircraft.
8. Nonrated passengers and aircrews who fly occasionally (at least once every 90 days) to perform specific enroute or destination tasks will receive egress training once every 60 days.
9. HHT is not required on weapon systems that do not require parachutes for airborne escape.
10. T-37 and T-38 aircrews who are not in student status will receive egress and HHT annually.
11. HHT w/ACDE is not required on weapon systems not equipped with a chemical defense capability.

AIRCREW VIDEO EQUIPMENT EGRESS (T-37/T-38)**A3.1. Equipment Requirements:**

A3.1.1. **Size.** Any camera should be small enough to fit on the floor immediately aft of a rudder pedal in the T-38 or between the seats, aft of the map case in the T-37. If a video camera is used and the video recorder is a separate unit, the recorder will be small enough to fit in the map case.

A3.1.2. **Quick Disconnect.** All video equipment that is not a single unit must have quick disconnect capability at the recorder. If the plug at the recorder has a screw-type sleeve, quick disconnect will be obtained by not screwing down the sleeve. The sleeve will be taped up and out of position to prevent the sleeve from inadvertently screwing down on the connection during flight. Other equipment will be modified with quick disconnect fittings.

A3.1.3. **Certification.** All video equipment will be certified through Aeronautical Systems Division for Engineering (ASD/EN/ACE), Wright-Patterson AFB, prior to using it in flight.

A3.2. Stowing Procedures. Stow the camera in a helmet bag between the seats, aft of the map case in the T-37, when not actually filming or performing equipment checks. It will be held on the lap in the T-38. If a video recorder is stowed in the map case, stow in-flight publications in the side pouches in the T-37 and remove them from the cockpit in the T-38. If the map case lid cannot be closed, place a retaining device across the top of the map case to hold the recorder in place in the event negative Gs are encountered.

A3.3. T-37:**A3.3.1. Preflight:**

A3.3.1.1. **Flight Publications.** Stow in pouches.

A3.3.1.2. **Camera.** Stow.

A3.3.1.3. **Video Recorder.** Stow in map case. Attach the retaining device to ensure the recorder will not slide out during negative G flights. The video camera/recorder cable will have a quick disconnect capability at the recorder. Cameras will be disconnected and stowed in a helmet bag aft of the map case when not filming or performing equipment checks. **WARNING:** Personal leads (oxygen and communications), lapbelts, or shoulder harnesses, will not be disconnected or loosened during flight in order for pictures to be taken.

A3.4. Emergency Operations:**A3.4.1. Ground Egress:**

A3.4.1.1. **Camera.** Stow. Disconnect the video camera cord at the recorder. Stow the video camera and cord on the floor aft of the map case and between the seats. Other type cameras will also be stowed in this location.

A3.4.2. Normal Egress Procedures:

A3.4.2.1. Ejection:

A3.4.2.2. **Camera.** Stow. Disconnect the video camera cord at the recorder. Stow the video camera and cord on the floor aft of the map case and between the seats. Other type cameras will also be stowed in this location. **WARNING:** Failure to stow camera and cable between ejection seats may interfere with ejection sequence and can cause severe personal injury during ejection sequence. If time does not permit proper equipment stowage, hold the camera tightly against the body with one hand and eject using the free hand.

A3.5. T-38:

A3.5.1. Preflight:

A3.5.1.1. **Flight Publications.** Remove (if required).

A3.5.1.2. **Camera.** Stow.

A3.5.1.3. **Video Recorder.** Stow in map case. Attach the retaining device to ensure the recorder will not slide out during negative G flight. The video camera/recorder cable must have a quick disconnect capability at the recorder. Temporary storage on top of the circuit breaker panel is authorized for preflight and during periods in flight when the camera is not being used. Ensure the camera is properly stowed prior to ground egress or ejection. **WARNING:** Personal leads (oxygen and communications), lapbelts, and shoulder harnesses, will not be disconnected or loosened during flight for pictures to be taken.

A3.5.2. Emergency Operations:

A3.5.2.1. Ground Egress:

A3.5.2.1.1. **Camera.** Stow. Disconnect the video camera cord at the recorder. Stow the video camera and cord on the floor just aft of a rudder pedal. Other type cameras will also be stowed in this location.

A3.5.3. **Normal Egress Procedures.** **WARNING:** Take care not to trip on the camera or cord while exiting the aircraft.

A3.5.3.1. Ejection:

A3.5.3.2. **Camera.** Stow. Disconnect the video camera cord at the recorder. Stow the video camera and cord on the floor just aft of a rudder pedal. Other type cameras will be stowed in the location.

A3.5.4. **Normal Ejection Procedures.** **WARNING:** Failure to stow camera and cable on floor may interfere with ejection sequence and can cause severe personal injury during ejection sequence. If time does not permit proper equipment stowage, hold camera tightly to the body with one hand and eject using the free hand.

MAJCOM OPTIONS

Table A4.1. MAJCOM Options Implementation.

L I N E	A	B	C	D
	Technical Order	Paragraph	Option	Exception
1	00-5-2	4-15.3	Annotating items affected by supplements to TO paragraphs within the basic text	
		4-26.4	Use of separate AFTO Form 110 for each TCTO	
2	00-20-9	1-4.1, note	Time change forecasts	
3	00-25-241	4b, note	AFTO Form 392, files and entries	
4	14D3-11-1	4-6a, note	Minor repair of parachute	
		5-10a, notes 1 and 2	Removal of zero delay lanyard	
		5-10h, note	Nylon webbing snap installation for zero delay lanyard tab	
		5-13c	Parachute backstrap modification	
		5-16c	Installation of SDU-5/E strobe light on torso harness	
		5-16g, note 2	Direct beacon plug-to-riser hookup	
		11-8m, note	Installation of URT-33 series beacon in back style parachute	
		11-8o, note	Installation of the hook blade knife and pocket	
		18-9e, note 2	Installation of the SRU-16/P minimum survival kit	
5	14P3-1-112	2-4, note	Location of MC-1 knife on outer garment	
		2-14b	Rework of jacket hood with buttons or Velcro	
		2-16	Rework of flight jacket for combat edge	
		4-3	Postflight of helmet and oxygen mask	
6	14P3-1-161	4-9.15(a)	Tacking CE visor straps to maintain the position of the visor	
7	14P3-4-151	3-6d	Use of AFTO Form 334 (or equivalent) for helmet inspection	
		4-5b(b)(1)	Prevention of scratches in lightweight visor	
		5-3	Aircrew postflight of helmet and oxygen mask	
		5-4, note 2	Record periodic inspection AFTO Form 334	
		5-11.1.e(3)a	Fabrication of customized earcup cushion	
		5-15.1	Attachment of offset bayonet receivers without aircrew member present	
		5-18f	Visor lens scratch remover	
		5-25c, note	Removal of chin strap pull tab	
		5-28j(1)	Inspection of visor strap	
		5-28j(1)	Local manufacture of visor strap unit option	
		5-34a, note	Gray leather piece may be used to reinforce edge roll	
8	14P3-6-121	2-6, note	Wear of the MC-1 knife (unit option)	
		3-4a, note	Anti-G suit fit check	
		6-1, note	Laundrying of the anti-G suit (unit option)	
9	14P3-9-21	4-4	Alternate construction of quick check indicator	
		5-2, note	Altering AFTO Form 334	

(Table continued on next page)

Table A4.1. Continued.

LINE	A	B	C	D
	Technical Order	Paragraph	Option	Exception
10	14S-1-102	1-1a, note	Use of polyethylene bags for items prone to spillage or melting	
		1-7c, note	Additional information on applicable cards	
		4-11.3.1	Attachment of accessories to adult/child LPU	
		5-1.1.3, note	Functional test during initial installation inspection	
		5-10a, note	280-day liferaft inspection cycle	note 1
		5-16.1r(4)3	Wrapping of plug on water-activated light	note 1
		Table 7-4, notes 4, 7, 10, and 13	Spare radio battery, distillation kit replacement, use of SDU-5/E in place of SDU-30E and cyalume light	
		Table 7-11, notes 1, 2, 3, 4, and 5	Aluminum blanket, distillation kit replacement, use of SDU-5/E in place of SDU-30/E, spare radio battery, radio package container	
11	14S1-3-51	Section II, note 1 or 2	Pull tab on plastic bag	Unit option
		2-9, note	Decal on sleeping bag on container	note 2
		2-13a, note	Zip-lock bag for match container w/flint	
		2-24	Tying survival components to inner container	
		2-28i(2)	Installation of mirror in zip-lock bag	
		5-4	Positioning of free end of kit straps to outside of container	
		6-8 and 6-9, option 1/2	Inspection of SRU-16/P minimum survival kit	
		8-6, note 1	Vest pocket positioning (location wing option)	
		8-9c	Annotation of survival vest inspection date on fiberglass tape attached to inside of vest lacing cover	
		8-19d	Survival vest zipper mod	
		8-19h	Reinforcement of eyelets	
		8-19I	Alteration for fit	
		8-27 and 8-28	MXU-22/P Lumbar Pad	Rotary wing only
		Table 11-1	Installation of beacon	
		Table 11-1, note 5	Replacement of desalter kit	
		11-2c, note	Use of polyethylene bags for items prone to spillage or melting	
12	15X5-3-6-1	4-7.1, note 2	Securing mask straps with tape	notes 1 and 3
		4-13	Postflight of oxygen mask after last flight	
		5-6	Complete disassembly of oxygen mask every 30 days	
		5-13.2, note	Removal of microphone mounting bracket	
		5-19.5a	Use of strap fastener in place of hose clamp	
		5-19.9a	Use of locally fabricated torque tool to tighten oxygen valve nut	
13	15X5-4-4-12	4-4d(5), note	Tape for incentive/initial flights	notes 1 and 3
		4-4d(5), notes 2 and 3	Trimming of oxygen mask straps	
		5-2	Complete disassembly of oxygen mask every 30 days	
		5-11a, note	Postflight of mask	

(Table continued on next page)

Table A4.1. Continued.

L I N E	A	B	C	D
	Technical Order	Paragraph	Option	Exception
14	15X5-4-10-1	3-1e	Attachment of antismoke goggle to the suspension assembly	
		4-2a.8	Closing of vent valve when antismoke goggle is not in use	
		5-2d	Complete disassembly and cleaning of antismoke mask will not	
		5-5.3(3)	Use of strap fastener in place of clamp	
		5-8.2.6	Tacking of top strap assembly	
15	15X5-5-3-1	5-8o	Use of strap fastener in place of hose clamp	
		5-15a thru e	Rework of the emergency smoke mask bag	

NOTES:

1. Not fighter aircraft or aircrews.
2. Not airlift aircraft or aircrews.
3. Not training aircraft or aircrews.

EQUIPMENT PREFLIGHT/POSTFLIGHT CHECKLISTS**A5.1. Helmet and Oxygen Mask (prior to each flight):**

A5.1.1. **Helmet.** Visually check for damage; check chin and nape straps for security of attachment.

A5.1.2. **Oxygen Mask and Connector.** Visually check for damage; check for leaks and operation with oxygen tester.

A5.1.3. **Communications System.** Check for proper operation of headset and microphone with oxygen tester.

A5.1.4. **Visor Lens(es).** Check for cracks, scratches, dust particles, and smears. Minor scratches not interfering with critical vision area are permissible. Check for proper operation. (Post 14P3-4-151, figure 5-20A)

A5.2. BA-18/22/29 Parachute (prior to the first flight of the day):

A5.2.1. **Chest and Leg Straps.** Check snaps and keepers.

A5.2.2. **Rip Cord.** Stowed.

A5.2.3. **Automatic Actuation Knob.** Stowed.

A5.2.4. **Zero Delay Lanyard.** As required.

A5.2.5. **Canopy Releases.** Closed.

A5.2.6. **Emergency Oxygen.** Check pressure.

A5.2.7. **Back Pad.** Secure.

A5.2.8. Automatic Ripcord Release:**A5.2.8.1. Type M11000:**

A5.2.8.1.1. Visually check for white tape on lower knurled nut threads.

A5.2.8.1.2. Ensure no more than two threads are visible on lower body of release above knurled nut.

A5.2.8.2. Type Scot:

A5.2.8.2.1. Visually check for presence of white tape on lower knurled nut threads.

A5.2.8.2.2. Physically check to ensure lower knurled nut is finger tight.

A5.2.8.2.3. Physically check barrel to ensure it is finger tight.

A5.2.8.2.4. Physically check upper knurled nut to ensure it is finger tight. **NOTE:** Contact a life support technician if you find any discrepancies with the release.

A5.2.9. **Zippers.** Closed.

A5.2.10. **Dual Housing Clamp.** Check for damage and to ensure power cable housing is attached and screws are secure.

A5.2.11. **Risers.** Straight and tacked to pack.

A5.2.12. **Pack.** Closed with no canopy showing.

A5.2.13. **Stains.** Check for oil, acid, water, etc.

A5.3. Anti-G Suit (prior to the first flight of the day):

A5.3.1. **Outer Fabric.** Check for tears and assess general condition.

A5.3.2. **Back Waist Panel.** Check for protruding, broken, or missing stays.

A5.3.3. **Zippers, Hooks, and Snaps.** Check for damage and ensure proper operation.

A5.3.4. **Garment Disconnect.** Check for corrosion and damage.

A5.3.5. **Survival Knife.** Installed (if applicable).

A5.3.6. **Pressure Check.** Use aircraft system.

A5.4. Life Preserver (prior to the first flight of the day):

A5.4.1. **Exposed Metal Parts.** Check for corrosion or damage.

A5.4.2. **Container Fabric.** Check for cuts, tears, or other damage.

A5.4.3. **Inflation Lanyards and Knobs.** Check exposed portions for damage.

A5.4.4. **Straps and Keepers.** Check for security and wear.

A5.4.5. **Stains.** Check for dirt, oil, and assess for general cleanliness.

A5.5. Parachute Spacer Kit (prior to the first flight of the day):

A5.5.1. **Container Exterior.** Check for holes, tears, stains, and water leakage.

A5.5.2. **Attachment Straps.** Check for cuts, fraying, tears, security, and contamination.

A5.5.3. **Ejector Snaps.** Check for damage, corrosion, security, and proper operation.

A5.5.4. **Zipper Safety Tie.** Intact.

A5.6. Survival Vest (prior to the first flight of the day):

A5.6.1. **Vest Material.** Check for cuts, tears, loose stitching, and cleanliness.

A5.6.2. **Zipper, Snaps, or Hook and Pile Fasteners.** Check for proper operation.

A5.7. Equipment Postflight Checklist (after the last flight of the day [minimum]):

A5.7.1. **Helmet.** Visually check condition. Check for security of components.

A5.7.2. **Visor.** Check for cleanliness and scratches. Check for proper operation.

A5.7.3. **Oxygen Mask, Hose, and Standard Masks.** Visually check condition; clean faceform with alcohol. **NOTE:** Use soap solution for custom fit masks.

A5.7.4. **Parachute.** Visually check condition; stow all hardware (except chest strap).

A5.7.5. **Other Equipment.** Store according to local directives. **NOTE:** Report any problems, upon detection, to life support personnel for corrective action.

AIRCREW CLOTHING REQUIREMENTS

A6.1. Clothing Requirements. AETC aircrews performing flight duties will have the following:

A6.1.1. NOMEX flight suit, CWU-27/P (all).

A6.1.2. NOMEX gloves, GS/FRP-2 (all). Gloves will not have fingers exposed, cut off, or modified in any manner.

A6.1.3. USAF-approved flight boots, as authorized in AS 016 , are the FWU-3/P or FWU-8/P (All). Boots constructed with canvas, nylon, or a non-NOMEX cloth/nonleather outer material are not authorized for flight operations. **EXCEPTION:** Passengers flying in nonejection seat aircraft or personnel being transported in support of other operations (for example, VIP, pararescue, combat controllers, IG, AF Band, etc.) are exempt from this requirement. Navy aircrews assigned to AETC courses may wear Navy-issued flight boots.

A6.1.4. Undergarments (all), NOMEX or 100-percent cotton (synthetic material is prohibited).

A6.1.5. Thermal underwear, CWU-43/P, 44/P as required.

A6.1.6. USAF-approved flight jacket (CWU-36/P, CWU-45/P, or A-2), as required. **NOTE:** The NOMEX flight jacket will provide superior protection in a fire environment.

A6.1.7. Winter flight gloves with wool inserts, as required (worn or carried).

A6.1.8. Mittens, as required. (Pilots or boom operators will not wear mittens, N-4B, during critical phases of flight.)

A6.1.9. Knife, MC-1, or riser cutter may be worn according to TOs 14P3-1-112 and 14P3-6-121.

A6.1.10. Identification tags and metal chains according to AFI 36-3103, *Identification (ID) Tags*, as required.

A6.2. Contract Aircrews. Contract aircrews may wear commercially procured NOMEX flight clothing items (such as, flight suits, flight jackets, flight gloves, undergarments, thermal underwear), and all-leather boots in lieu of specific clothing requirements outlined in paragraph A6.1.

AIRCREW FLIGHT CLOTHING AND WORN LSE

Table A7.1. Aircrew Flight Clothing and Worn LSE.

L I N E	A	B	C	D	E	F	G	H	I
	Item	T-1/ T-43	T-3	T-37	T-38	F-15/ F-16	KC-135	Cargo Airlift	Helicopter
1	NOMEX flight suit	X	X	X	X	X	X	X	X
2	USAF flight boots, FWU-3/P or 8/P	X	X	X	X	X	X	X	X (note 1)
3	Flight glove, GS/FRP-2	X (note 2)	X	X	X	X	X (note 2)	X (note 2)	X
4	NOMEX, aramid, cotton, or wool underwear and socks	X	X	X	X	X	X	X	X
5	Flight jacket	As required	As required	As required	As required	As required	As required	As required	As required
6	Helmet, HGU-55/P			M	M	M	AR	AR	
7	Helmet, SPH-4/AF								X
8	Oxygen mask (MBU-12/P or MBU-5/P [Custom])			X	X	X	As required	As required	
9	G suit (CSU-13/P)				X	X			
10	Knife, MC-1/hook blade					X			
11	Combat edge (MBU-20/P, CSU-17/P)					X			
12	Parachute, BA-18/22/29			X	X				
13	Parachute, FAA approved (20 pounds max)		X						
14	Harness, PCU-15-16/P					X			
15	Vest/parachute spacer kit			As required	As required				

NOTES:

1. To provide increased foot protection during extreme cold weather operations, 36 RQF aircrews are authorized to wear Danner insulated leather boots.
2. Required during critical phase of flight (engine start, take-off, landing, refueling, etc.)

PARACHUTE FLARE, KNIFE, AND MIRROR POCKET MODIFICATION (T-37, AT/T-38)

A8.1. Instructions. This attachment provides instructions for the fabrication and installation of the flare, knife, and mirror pocket for the back-style parachute specifications. (See figures A8.1 through A8.3.)

A8.1.1. Fabricate pocket according to the following specifications and patterns:

A8.1.1.1. Size of finished pocket: 4 1/16 inches by 6 1/2 inches.

A8.1.1.2. Pocket will be machine-stitched to the right-side flap of the parachute using nylon thread, type V-T-295, size FF.

A8.1.1.3. Closure will be accomplished by means of a pull-the-dot fastener and two breakaway tackings.

A8.1.1.4. Hard tacks will be installed on opposite sides of the snap fastener. Use one turn of single unwaxed cotton thread, V-T-276, size 8/4, tied with a surgeons and locking square knot.

A8.2. Materials:

A8.2.1. Cloth, duck, nylon, sage green: NSN 8305-01-173-4436.

A8.2.2. Tape, nylon, sage green, 3/4 inch (edge beading): NSN 8315-00-616-0850.

A8.2.3. Thread, nylon, sage green: V-T-295, size E.

A8.2.4. Thread, nylon: V-T-295, size FF.

A8.2.5. Unwaxed cotton thread: V-T-276, size 8/4.

A8.2.6. Pull-the-dot fastener:

A8.2.6.1. Cap: NSN 5325-00-891-9073.

A8.2.6.2. Socket: 5325-00-486-7929.

A8.2.6.3. Stud: 5325-00-276-4908.

A8.2.6.4. Post: 5325-00-276-4978.

Figure A8.1. Parachute Pattern (Front).

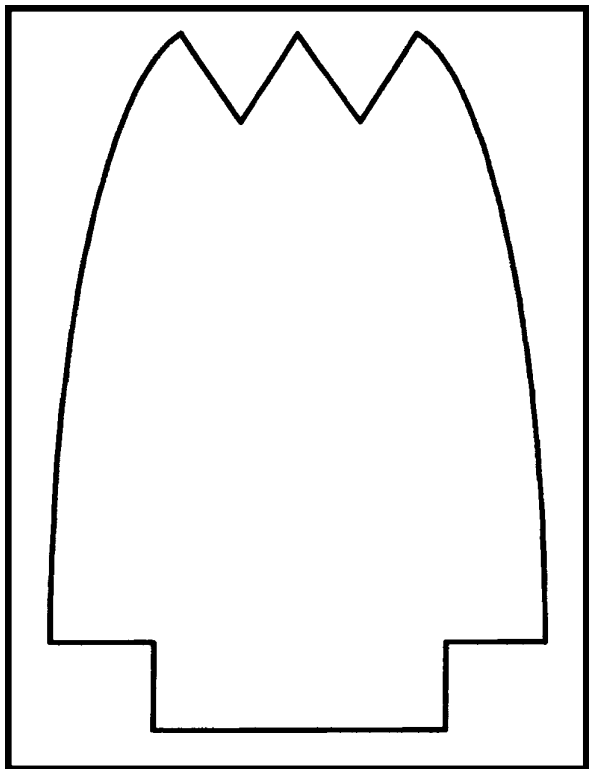


Figure A8.2. Pattern (Back Panel).

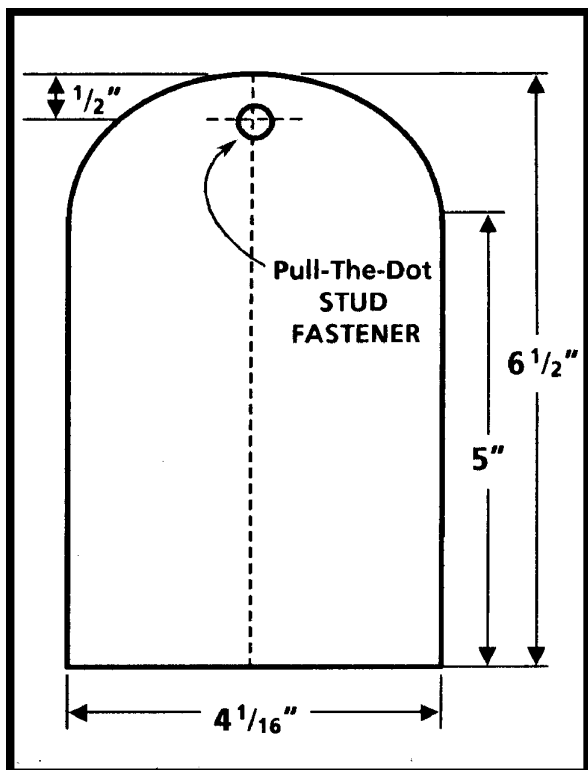
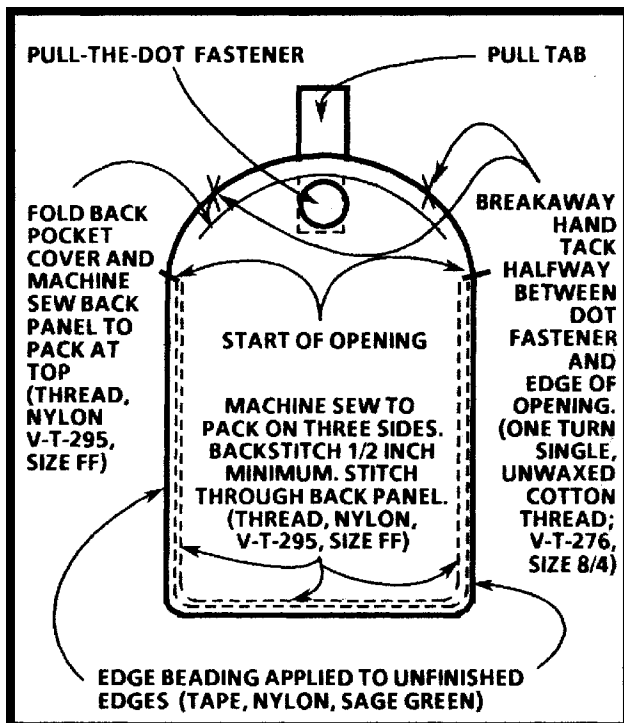


Figure A8.3. Pocket Cover and Installation.



PROTECTIVE CLOTHING KIT ITEM LISTING

Table A9.1. Protective Clothing Item Listing.

L I N E	A	B	C
	Item	NSN	Quantity
1	Apron, clear vinyl	8415-00-715-0450	2 each
2	Dustpan, rubber	7290-00-616-0109	1 each
3	Gloves, aramid	8415-01-092-3910	1 pair
4	Gloves, rubber	8415-00-266-8675	2 pair
5	Plastic bag	8105-00-848-9631	3 each
6	Shears, metal cutting	5110-00-293-0089	1 each
7	Tape, masking, 1 inch	7510-00-266-6712	1 roll
8	Vermiculite	5640-00-801-4176	5 pounds
9	Whisk broom, 10 inch	7920-00-240-6350	1 each

INSTALLATION OF HEED ON SURVIVAL VEST

NOTE: This attachment provides instructions for installation of HEED on the SRU-21/P survival vest. Life Support technicians will ensure HEED is attached to the vest as indicated in the paragraphs below.

A10.1. Pocket. Using cloth-nylon sage green material, NSN 8305-00-936-1836, or NOMEX sage green material, NSN 8305-01-147-2064, sew a 3-inch by 2 1/2-inch pocket. Position the pocket 6 inches left of the zipper and 1 1/2 inch from the bottom of the vest. To prevent snagging or entanglement, after HEED removal, sew a 1-inch by 1/2-inch piece of velcro hook and pile to pocket so that the pocket may be closed when bottle is removed. Use a box stitch for all sewing.

A10.2. Bottle Strap:

A10.2.1. Allowing for a 1/4-inch fold on all sides, cut a 2 1/2-inch by 10 1/2-inch piece of material, fold, and sew.

A10.2.2. Attach a 2-inch piece of Velcro (hook) on the outside of one end. On the opposite end, measure 1 1/2-inch inward on the salvage side and attach a 2-inch piece of Velcro (pile) leaving a 1 1/2-inch pull tab.

A10.2.3. Attach the bottle strap to the SRU-21/P survival vest with the Velcro (hook) end nearest the zipper with the salvage side facing up using a 1-inch box stitch. Position bottle strap where bottle mouthpiece is no closer than 1 1/2-inch from the zipper. There is a 5-inch gap between the two bottle straps. The upper bottle strap is 2 inches wide, bottom strap is 3 inches wide, gap 5 inches wide, making the total length 10 inches.

A10.3. HEED Bottle. Upon completion of the modification, install the HEED bottle with the mouthpiece facing the zipper.

A10.4. Retention Lanyard. To prevent loss of the HEED bottle, attach a 20-inch retention lanyard according to TO 14S1-3-51. Position the tape 2 inches down from the base of the regulator. Attach the free end of the lanyard to the survival vest immediately above the bottle strap using a bowline knot. Fake retention lanyard into 2-inch hanks and secure with a rubber band (number 32) and store in bottle strap.